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THE  
AMERICAN JOURNAL  
OF THE MEDICAL SCIENCES.

JANUARY, 1890.

ACUTE ARTHRITIS OF INFANTS.<sup>1</sup>

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AMONG the many acute diseases of bones, probably none has attracted more attention of late years than osteomyelitis. This is largely due to the fact that with our advanced knowledge of bacteriology many points in its etiology and causation have been cleared up, and at the same time our methods of treatment are more scientific and accurate.

Acute arthritis of infants is a disease which may properly be described under the acute infectious processes of bone. The term was first used by Jules Teilhard La Terrisse in his thesis presented to the Faculty of Medicine of Paris for the degree of doctor of medicine,<sup>2</sup> in 1833. He reports three cases in children of three, six, and nine days respectively, and on autopsy in each case found pus in several of the joints. In one case there were also several abscesses in the lung. He believes the joint collections of pus were metastatic, and says that M. Dance, in an article on phlebitis, has cited similar cases.

In 1874, Mr. T. Smith, surgeon to St. Bartholomew's Hospital, describes the affection and reports twenty-one cases, under the name "Acute Arthritis of Infants."<sup>3</sup> Barwell, in his treatise on diseases of the joints, describes the disease under consideration as "Peracute Articular

<sup>1</sup> Read at the meeting of the American Orthopædic Association, 1889.

<sup>2</sup> *Observations d'Arthritis aiguës chez l'Enfant nouveau-né, etc.* Thèse, etc., 1833.

<sup>3</sup> *Acute Arthritis of Infants*, by T. Smith. St. Bartholomew's Hospital Reports, 1874, vol. x.

Ostitis," and also employs the term epiphysitis.<sup>1</sup> Klose, from the frequent separation of the epiphysis from the rest of the bone, was induced to describe it as "Epiphysentrenung," and also meningo-osteo-phlebitis.<sup>2</sup> Chassaignac, Demme, Lannelongue, and others have described it as osteomyelitis. Krause, in an article on "Acute Purulent Synovitis in Infants," describes it, and says that Volkmann has seen some fifty cases<sup>3</sup> and that he calls it "Catarrhal Inflammation of Joints in Infants." He did not believe that other diseases acted as exciting causes, and most of his cases terminated favorably. He found a coccus resembling the staphylococcus pyogenes of Rosenbach, and the diphtheritic coccus of Löffler. Stromeyer, in a memoir on "Osteitis Articularis Peracuta," speaks of it, and it is from him that Barwell takes his definitions and terms. MacNamara, in the first edition of his work, writes of "Acute Epiphysitis," but in the later edition,<sup>4</sup> owing to the fact that exception has been taken to the term "epiphysitis" as applied to the disease we are considering, calls it "suppurative osteitis in growing bone," and as synonyms gives "acute osteitis of childhood, suppurative periostitis, juxta-epiphysial osteitis, acute necrosis of childhood, and osteomyelitis during growth of bones"—these are in addition to some of the various names we have already considered. Thomas Jones,<sup>5</sup> in his work on diseases of the bones, does not give a separate chapter to acute arthritis of infants, but treats of it under "Acute Osteomyelitis," and under "Necrosis of Epiphyses and of Articular Extremities of Bones." Among the earlier writers quite a confusion exists as to names. Schutzenberger, in 1853, wrote on "Rheumatic Periostitis;" Chassaignac, in 1854, on "Acute Sub-periosteal Abscess;" Becker, in 1858, on "Phlegmonous Periostitis;" Garnet, in 1862, on "Juxta-epiphyseal Osteoperiostitis," Giraldès on "Phlegmonous Periostitis," and Huber on "Arthritis Suppurativa Multiplex Rheumatica bei Kinde."

As the earlier authors endeavored by the terms used to describe the disease, so the term acute arthritis of infants, which was first used by Terrisse, and then brought into prominence by Smith, seems to meet the requirements more fully than the others, and should be retained, I think.

In considering the question of disease affecting the articular ends of long bones in infants, it is necessary that we recall certain differences in those structures as compared with the conditions which exist in later life.

<sup>1</sup> A Treatise on Diseases of the Joints, by Richard Barwell. American edition, 1881.

<sup>2</sup> Präger Vierteljahrsschrift, 1858, Klose.

<sup>3</sup> Berliner klinische Wochenschrift, 1884, No. 43, Krause.

<sup>4</sup> Diseases of Bones and Joints, by C. N. MacNamara. London, third edition, 1887.

<sup>5</sup> Diseases of the Bones, by Thomas Jones. London, 1887.

Mr. MacNamara, on the subject of "epiphysial cartilage," says:

"During early life, while the temporary cartilage is becoming calcified, and subsequently replaced by bone, the epiphyses remain unossified. The epiphysial cartilages increase in all directions by interstitial growth. The bones increase in length by means of ossification at that part of the epiphysial cartilage which is in proximity with the diaphysis.

"Osseous tissue is in the epiphyses, as in the diaphyses, preceded by calcification of the cartilage; then the production of osteoblasts, the removal of the cartilage matrix, and development of bone. In the epiphyses, however, the process of ossification commences in the centre of the cartilage and advances from within outward; a disk of cartilage ultimately separating the osseous structure of the diaphysis from that of the epiphysis.

"But after the ossification of this cartilage is completed—that is, from adult life onward—the space which the epiphysial cartilage previously occupied is represented by a line of osseous tissue which can be demonstrated, and which separates the longitudinal system of lamellæ of the epiphysis from that of the diaphysis. The circulation of the blood is carried on unequally in these different parts of the bone, the epiphyses being the least vascular part of a fully formed bone.

"In early life the line of newly formed bone, which is in proximity with the diaphysial side of the epiphysial cartilage, is extremely vascular. Not only do numerous vessels penetrate this part from the diaphysis, but there is a venous plexus surrounding the bone in this situation. However carefully we inject a full-grown fetus, it is difficult to prevent the extravasation of the injection into the tissues immediately surrounding the junction of the diaphysis and epiphysis. The cells of the epiphysial cartilage next to the diaphysis pass through changes similar to those I have described as occurring at a centre of ossification, so that at this vascular line there is a constant formation of calcified cartilage, and therefore of a very friable structure, and its replacement by osseous tissue.

"The circumference of the epiphysial disk of cartilage is prolonged over the outer surface of the diaphysis, passing into and forming the deep layers of the periosteum. In fact, the osteoblasts of the deep layer of the periosteum in the growing bone are derived from the protoplasm contained in the cells of the epiphysial cartilage. It follows that as the various bones of the body arrive at that period of growth when the epiphysial disk has formed, the extremities of their diaphysis are enclosed in a cup-shaped piece of this cartilage; in this way, if pus forms in the soft structures at the extremities of the diaphysis, it is directed outward by the cartilage into the deep layer of the periosteum. Matter collecting at the extremity of the diaphysis is prevented by the cartilage from extending into the epiphysis or into the synovial cavity of the neighboring joint.

"In infant life, before the epiphysial disk of cartilage has formed, the centre of ossification of the epiphysis is, however, contained within the synovial membrane; so that, if this isolated portion of bone becomes inflamed, suppurative synovitis is almost sure to occur; for it is interesting to note that the epiphysial cartilage is prolonged during fetal life into the tissues which are developing into the future synovial membrane; this membrane may be considered as a modified form of periosteum passing from one bone to the other."

Kölliker and others have shown that the extremity of the diaphysis grows quickest whose epiphysis remains the longest separated, demonstrating Professor Humphrey's law, that the growth of bone is chiefly in the direction of its nutrient artery. The condition of the medulla and the remainder of the bone need not be entered into, as we have simply introduced so much of the anatomy as was essential to a clear under-

standing of the disease in question, and to show why in infants the symptoms must necessarily be somewhat different from those in adults.

With this knowledge of the subject the pathology is more readily understood. Of course, in an article of this character, it is not proposed to go into the entire subject of osteomyelitis.

**PATHOLOGY.**—The pathology of acute arthritis of infants has not been dwelt upon at any length by the earlier writers, although all of them look upon it as a pyæmia of bone. Howard Marsh<sup>1</sup> says the pathology of the affection is obscure. It begins, usually, in the epiphysis as a hyperæmia or congestion of the bloodvessels situated within this structure, or in some cases in the dividing line between epiphysis and diaphysis, or rarely in the diaphysis. This congestion is soon succeeded by inflammation and the rapid production of pus. The pus soon enters the joint cavity, though in many cases the opening is no larger than a mere pin-hole. Mr. T. Smith says that in several of his cases that was entirely overlooked until after he had made sections of the bone, and thus discovered the opening. The pus instead of entering the joint, or even after the joint has been invaded by the breaking down of the tissues beneath the epiphyses, may burrow along under the periosteum and open through it at a point remote from the joint—a fact to which Mr. Marrant Baker has called special attention, and also MacNamara. This abscess is “sub-articular” at the beginning. In some instances, before the pus escapes to the surface, it may follow down through the medulla, which, in infants, is not a distinct canal, and thus invade a neighboring joint or produce the same effect by dissecting down under the periosteum along the shaft. Again, it may be absorbed into the general system and an abscess occur by metastasis in some distant joint, in the soft parts, or in some of the viscera.

The character of the pus varies considerably. It may be thick, yellowish, and sticky and in some cases tinged with blood, or dark brown in color and thin. The time at which it is examined, no doubt, influences its character, for we might reasonably expect to find it different when confined to the bone alone, or when involving the joint and the adjacent soft parts.

M. Kiener<sup>2</sup> has shown that numerous microbes are found in the tissues contained in bones affected with this disease, and mentions the staphylococcus aureus and albus. Rodet<sup>3</sup> is quoted by Ollier at the first congress of French surgeons as having produced all the varieties of juxta-epiphysal osteitis by inoculations with fluid cultures of the staphylococcus aureus. In Case XVIII. reported in this paper, both the staphylococcus aureus and albus were found, and another form unnamed.

<sup>1</sup> Diseases of Joints, American edition, 1886.

<sup>2</sup> Quoted by MacNamara: Diseases of Bone.

<sup>3</sup> Rodet: Rev. de Chir., 1885.

Destruction of the epiphysis soon begins, and the necrotic process may go on to the entire destruction of the articular end of the bone. The necrosis may result in the formation of a sequestrum, but usually as the disease advances the pus carries away the broken-down bony and cartilaginous tissues, and at an early period we get grating in the joints, due to the destruction of the cartilage on the bone ends, thus allowing the rubbing together of the two rough surfaces. With the destruction of the epiphysis or its separation from the diaphysis the normal movements of the joint affected are altered, and we may get either a pathological dislocation or a flail-like joint, rarely we get ankylosis. The dislocation of the bone from its articulation may also be due to the destruction of the joint capsule by the products of inflammation, or by destruction of the soft parts adjacent to the articulation. After the products of inflammation have reached the surface and been discharged either by spontaneous rupture or by an incision, the tendency is for the disease to subside with considerable rapidity, and usually the discharge soon ceases and a reparative process is begun. In those cases where the abscess is sub-articular and opens into the joint by a small opening, if the products of inflammation are evacuated early, there may be very slight change in the synovial membrane, the cartilages, and ligaments; but if the products of inflammation remain long in the joint the various structures entering into it may undergo serious changes, and even be completely destroyed.

The probable reason that the epiphysis is most frequently the starting-point of the disease is that the age of the patient is a predisposing cause, for when the bone is being produced and growth taking place, the centres of ossification of the epiphyses are the most vascular portions, and any congestion is more liable to occur here than at any other point.

Prof. Alex. S. Bobroff, of Moscow,<sup>1</sup> in reporting ten cases of osteomyelitis in adolescence, says it most frequently attacks the epiphyses of long bones, and thinks it due to the fact that the medullary cavity and spongy tissue of the epiphyses derive their blood from the nutrient arteries, which on their entering into the canal break into an extensive network with relatively retarded circulation. The retardation reaches its maximum about the epiphysial cartilage, thus favoring the lodgement of pathogenic microbes, and the staphylococci are carried by the veins, either entering by the skin or respiratory organs. The several forms of staphylococci found in acute arthritis of infants also cause multiple abscesses not connected with the bone, and Bouillaud,<sup>2</sup> writing on the subject, quotes Escherich as saying that in all children at the breast, whether they be well or ill, the staphylococcus albus and aureus are

<sup>1</sup> *Rhinirgitchesky Vestnik*, April and May, 1889.

<sup>2</sup> *Annales de Gynécologie et d'Obstétrique*, 1888, p. 81.

constantly to be found in the liver and in the more superficial layers of the epidermis. These pyogenic germs may enter the sebaceous or sudoriparous glands and set up inflammation, although usually they enter through a breach of the surface, which is so common in the tender integument of an infant. Of course, these same germs if carried further and lodged in the bone would cause a destructive process to be set up there.

As yet no separate and distinct form of coccus has been discovered in acute arthritis of infants different from what we find in osteomyelitis occurring at a later age, and we cannot but conclude that the disease is a pyæmia of bone.

In this connection I may be allowed to quote from Park's article on acute infectious processes of bone.<sup>1</sup> He says:

"The view that acute osteomyelitis sustains a close relation to pyæmia is hardly expressing it strongly enough. It not only leads to pyæmia, but it is almost from the beginning a pyæmia. This is to be explained, of course, on the anatomical ground that osteomyelitis is essentially a septic phlebitis of bone-marrow, and when we remember the most important rôle played by the veins in the production of the pyæmic condition, we can see how almost immediately an osteomyelitis, regarded in this light, becomes first a local, then a general pyæmic condition. Osteomyelitis . . . is one manifestation of the pathogenic properties of several microorganisms possessing common specific pyogenic activities. It is a phlegmon of bone or a local pyæmia," and his conclusions may well be quoted.

"(1) There is no specific microbe for the production of acute infectious processes in bone.

"(2) Most, if not all, the staphylococci can cause them; exceptionally the streptococci may exert such an influence.

"(4) Of all the forms, the staphylococcus aureus is most pernicious.

"(8) Of the general causes which favor their entrance, the diathetic conditions, such as the tubercular, and the dyscrasial, like the syphilitic and post-febrile, play a most conspicuous part. Age—that is, childhood—is always a predisposing cause."

An interesting fact has been brought out by some observers, especially by Lannelongue, that in later life an acute process may be produced from an old "infection" which may have been latent for many years, and where such a process occurs the previous history may be of importance.

We may appropriately here consider the results produced by the disease in those cases which recover. In slight cases where but little injury has been done to the bone or soft parts, the joint may be as good as before. In the upper end of the femur, when the epiphysis has become separated from the remainder of the bone, and in many cases the ligaments affected, the thigh-bone may be displaced on to the dorsum ilii, and the condition resemble "congenital dislocation of the hip." The motions are free, and the limb is shortened from two causes: first, from the loss of the epiphysis; second, from the bone being displaced, as in a disloca-

<sup>1</sup> AMERICAN JOURNAL OF THE MEDICAL SCIENCES, July, 1889.

tion. The patient often walks well, but the shortening of the limb will produce some lateral curvature of the spine, due to the tilting of the pelvis. In some cases where the bone has become displaced, instead of the signs of a pathological dislocation, we may have the limb anchylosed and in a faulty position. This is unusual, however. At the knee, if it is the lower epiphysis of the femur which has been destroyed, the movements of the joint will be free, in fact, freer than normal, there will be shortening of the limb, and the same secondary changes in the spinal column. The loss of the upper epiphysis of the tibia produces the same effect on the joint and a marked loss of length of limb, and in Case X. reported by me, where the fibula was uninjured, whilst the tibia has ceased to grow from its upper end, the fibula has continued to increase in length, and owing to its being attached above to the tibia and below at the ankle-joint, has become markedly bent, the convexity of the curve being on the outer side of the limb. (For further particulars see report of case.)

At the shoulder, elbow, and other joints, similar results may occur. In some cases the sequestrum may remain behind and cause trouble, necessitating its removal. The necrosis of the bone, when it extends to the shaft, may destroy much bony tissue, and if at the same time the periosteum is affected, the resulting deformity may be extensive. Howard Marsh<sup>1</sup> speaks of a case where the stump-like ends of the femur and tibia could be freely moved on each other, and were found to give way whenever the child, who was then twenty-four months old, bore any weight upon the limb. In another instance, the upper end of the tibia had slipped backward into the popliteal space, and was overhung by the projecting lower end of the femur, and in this position the two bones were cicatrized together. Mr. George Brown reports a very interesting case, showing how extensive the necrosis may be<sup>2</sup>—where in a child eight months old, following acute arthritis of the knee, there was necrosis of the entire shaft of the tibia. Amputation was done and the child made a good recovery.

ETIOLOGY.—The causes of acute arthritis in infants are not always easy to ascertain. In a number of cases the most careful investigation fails to discover any. Traumatisms of varying degrees of severity are more frequently assigned as a cause than anything else, and when we consider how slight an injury in an infant may produce a severe contusion, not only of the soft parts but of the deeper structures, we are not surprised at this. Rough and careless handling of a newborn babe may easily produce sufficient injury to the epiphysial end of the bone to cause

<sup>1</sup> Howard Marsh: *Diseases of the Joints*, American edition, 1886.

<sup>2</sup> George Brown: *Acute Arthritis of Knee-joint and Necrosis*, etc. *Trans. Clin. Soc. London*, vol. ix. p. 175.

the disease. Again, we may get a distinct history of injury, such as a fall from the crib or from the mother's arm, or that in turning the child over in bed, or even that at its birth, more force was used than the delicate structures could stand and thus a severe strain or wrench of the soft parts or even of the joints and bones occurred.

Pyæmia, or the absorption of pus from some other portion of the body, in many instances acts as an exciting cause. In some cases the exact point is easily demonstrated. A suppurating umbilicus may be the starting-point and the hip or knee-joint affection be secondary to it. In one of the cases reported in this paper the above state of affairs existed. Dr. Huber, of New York, tells me that he has had in his practice two cases of arthritis of the hip following an ulceration of the umbilicus. The autopsy book of the State Emigrant Hospital, Ward's Island, N. Y., for 1887, also contains the notes of a similar case where both sternoclavicular joints contained pus, and the bones entering into the articulation were eroded. The pyæmic joint trouble may be caused by an open-wound in some portion of the body and infection through the proper channels, the veins probably being the principal carriers of the microbes. Then there are cases where we cannot say positively whence came the infection. Roswell Park<sup>1</sup> says

"that the infection may occur through the ears, eyes, nose, mouth, pharynx, respiratory passages, mucosa of the alimentary canal, or skin; or, in other words, through any lesion of external or internal body surfaces. Furthermore, from any subcutaneous phlegmon, however small."

So that in a case presenting the characteristic symptoms of the disease, and with the characteristic lesions, we might have to look over all the above before we could positively say how the infection came to be introduced into the system. The wound, excoriation, or superficial or deep lesion may readily be so minute as to escape our observation.

The various exanthemata may act as exciting causes. T. Holmes<sup>2</sup> mentions an interesting case of suppuration in the hip-joint of an infant seven months old, following chicken-pox. Dr. K. McLeod<sup>3</sup> details a case of epiphysitis due to variola, and another interesting case is reported by Ancell<sup>4</sup> in a babe eleven months old, suffering with variola. An eruption appeared, and discoloration commenced on the tenth day; upon the eleventh the infant showed signs of distress, various swellings occurred in the neighborhood of the joints, and fluctuation soon followed with dilatation of superficial veins. After death, diastasis of most of the epiphyses was noted, while various joints were filled with pus.

Typhoid fever in older children is in many instances an exciting cause

<sup>1</sup> AMERICAN JOURNAL OF THE MEDICAL SCIENCES, July, 1889.

<sup>2</sup> T. Holmes: The Surgical Treatment of Diseases of Infancy and Childhood.

<sup>3</sup> Indian Medical Gazette, 1883, p. 232.

<sup>4</sup> Archives of Medicine, 1830, vol. iv. p. 491.



of periostitis, but I have found no cases recorded where a suppurative arthritis followed. Measles was ascribed as the exciting cause in one of Mr. Wright's cases. Scarlatina also may be complicated or followed by a joint trouble of a purulent character, and most writers on diseases of children speak of it. Eustace Smith<sup>1</sup> says the trouble may be pyæmic, rheumatic, or the expression of the scarlet fever in the joint.

Dr. H. Ashby,<sup>2</sup> of Manchester, has written an interesting article on the surgical complications of scarlatina, and describes four varieties: synovitis; acute or chronic pyæmia; acute or subacute rheumatism; scrofulous disease of joints. He only reports three cases where the fluid in the joint was purulent in character, and does not give the ages of the patients except in one case, a boy of two and one-half years. Acute arthritis of infants has also been known to follow whooping-cough.<sup>3</sup>

Empyema is given as the exciting cause in a case reported by Mr. John Abercrombie,<sup>4</sup> and in a case related to me by Dr. Huber, of New York. The empyema was complicated by a purulent effusion into the metatarso-phalangeal articulation of the big toe of the right foot.

Tubercular disease or scrofula must, of course, when it exists in the parents, have a tendency to weaken the child's constitution, and render it more susceptible to any form of disease. Especially must it place the infant at a disadvantage when attacked by an acute disease which quickly lowers its vitality. Syphilis, as we know, produces disease and changes in the bone, but not of the character we are discussing; yet there is no reason why pyæmia should not attack a patient suffering from inherited syphilis. In most of the cases I have seen reported nothing is said as to the question of tuberculosis being inherited, or as to the question whether the parents were tubercular or not. In the cases I have personally seen, this point was carefully examined into, and in only a small proportion of cases was there any tuberculous history. The age of the child is a matter of great importance, and nearly all cases have occurred in children under one year.

**SYMPTOMS.**—The symptoms of acute arthritis in infants are quite constant, only we have different forms of severity of the disease. In most cases the disease is ushered in by a chill, although in a very young infant this may be absent or difficult to detect. A rise of temperature follows the initial chill, and in the very severe cases this may be well marked and at an early date be extreme. There is usually a difference between the evening and morning temperatures, the latter being the lower. The joint affected very soon becomes flexed, and in all the cases I have seen in the acute stage this was one of the most constant symp-

<sup>1</sup> Diseases of Children. Phila., 1886.

<sup>2</sup> British Medical Journal, May 22, 1886.

<sup>3</sup> Diseases of Children. Ashby and Wright, 1st edition.

<sup>4</sup> Transactions Pathological Society, London, 1881, xxii. 192.

toms. Any effort at straightening the limb is resisted by muscular spasm and usually causes considerable pain. The child may be very restless and fretful, and this may be due directly to the pain produced by the disease in the bone and articulation. A purulent effusion soon takes place in one or more joints, there is increased heat, limited motion at the articulation, and as the pus increases the superficial tissues may become red and œdematous or may be brown and glazed in appearance. The superficial veins become enlarged, the abscess with more or less rapidity invades the surrounding tissues, and in arthritis at the knee may extend to the hip or a considerable distance down the limb, toward the ankle.

Whilst the local symptoms are increasing the constitutional symptoms become more marked, the temperature rises until in the evening it may be 104° or over; the child becomes wasted, pale, sallow, has an anxious expression, may be delirious or have convulsions, or may have several chills followed by fever; and unless the patient's constitution be very strong or the surgeon interferes, the case rapidly goes on to a fatal termination. Very acute cases have been known to run their entire course in thirty-six hours. In these acute and severe cases exhaustion or pyæmic deposits in some of the viscera are the usual causes of death. In other cases the initial symptoms are the same, but the disease does not run nearly so rapid a course, and the abscess or purulent collection in the joint is formed more slowly. The constitutional symptoms are not so severe, and the effusion in the joint or the abscesses in the surrounding tissues, though they be large, gradually come to the surface and discharge or are opened by the surgeon, and the little patient makes a rather rapid recovery considering the nature and severity of the disease.

Another cause of death is given in a very interesting case reported by Wilmott,<sup>1</sup> entitled "Notes of a case of obscure abscess of the hip-joint in an infant, with death from pressure on the right common iliac vein." The child was six months of age, and had been ill five weeks when seen by Dr. Wilmott—supposed cause, a fall from perambulator, at which time the leg was twisted more or less severely. The most marked symptom was a slight swelling in the right groin and right labium. There was flattening and increased width of the right gluteal region. The child died on the twelfth day. The post-mortem showed that the abscess had burrowed up the course of the psoas muscle and down it on to the right thigh. The head of the femur and the upper rim of the acetabulum were denuded of bone, the capsule of the joint was ruptured on the inner side, the right common iliac artery and vein were involved in the inner side of the abscess wall, and in the vein was an embolus. Mr. Wilmott believes,

<sup>1</sup> Wilmott: Australian Medical Journal, Melbourne, 1882, N. S. iv. 344, 347.

had the case not died from embolism, the abscess would have ruptured and pus gotten into the peritoneal cavity and thus caused death.

**DIAGNOSIS.**—The diagnosis of acute arthritis of infants, though in most cases not difficult, yet at times is perplexing. It may be confounded with acute rheumatism, sprains and contusions of the joints, syphilitic disease of the bone, abscesses in the neighborhood of an articulation, or what is sometimes called "acute peri arthritis," and with malignant growths, and, in some rare instances, with a tubercular osteitis, in which abscesses appear early, and the symptoms at the onset are usually acute, or in later years the previous disease may be overlooked, and the case mistaken for a congenital dislocation.

From acute rheumatism the diagnosis can be made by examining the character of the joint effusion. In rheumatism it is thin or flaky, but not purulent, and the swelling is confined to the joint and does not invade the surrounding tissues. The rheumatic diathesis must also be inquired into, and the general condition of the patient taken into account. In the purulent effusions the constitutional symptoms are more severe, and the emaciation, loss of flesh, etc., more marked.

In sprains and contusions, although several joints may be involved, there are usually slight if any constitutional symptoms, but little pyrexia, and no loss of flesh or signs of blood-poisoning. It is the tissues about the joint, or, rather, superficial ones, which are involved, and a careful examination will disclose this fact. Then, the course of the two affections is very different. The following case well illustrates these differences:

Louis Shimmel, aged three and one-half months, seen at out-door department of Hospital for Ruptured and Crippled, July 6th. Fell three days ago from a chair; right ankle and left wrist are hot and swollen; no pus found by examination with hypodermatic needle; movements of joints slightly restricted; temperature normal. Child in good physical condition. Ordered hot fomentations. Aug. 15th: Examination shows no trace of former trouble. Mother says that in three days after the child was brought to the dispensary he was perfectly well again.

Syphilitic disease of the bones in infants is the trouble for which we are most apt to mistake arthritis of infants, and in all cases the history of syphilis must be carefully inquired into.

Taylor,<sup>1</sup> speaking of the variety with which we are interested, says: "The most extensive form of degeneration of these osseous swellings, in which there is a separation of the epiphysis from the diaphysis, appears also to be the rarest in practice." Since then quite a number of cases have been reported, and this form of epiphysial separation is well recognized. It is usually met with in children under one year of age. Node-

<sup>1</sup>Taylor, R. W.: Syphilitic Lesions of the Osseous System in Infants and Young Children. New York, 1875.

like swellings occur near the articular end of the bone or bones involved. These swellings increase with more or less rapidity, suppuration in and about the joint follows, the epiphysis is destroyed, and, as a result, deformities ensue.

The history of syphilis, the fact that swelling begins at a slight distance from the articulation and extends to it secondarily, that at first no fluctuation is present, that usually several joints are affected, that some of the specific forms of skin disease are often present, and that progress of the disease is usually not so rapid, and is relieved by the proper anti-syphilitic treatment, are all points of importance in arriving at a diagnosis.

From an "acute peri arthritis," or an abscess adjacent to the articulation, the diagnosis is easily made. We have generally a history of traumatism and a more or less rapid formation of pus in the periarticular tissues, without the joint being involved. If abscesses be large, there may be severe constitutional symptoms, but other joints are not affected, and the symptoms are generally purely local. The following case is a typical one :

H. O., aged two years. Came to the Hospital for Ruptured and Crippled, out-door department, June 13th. Four weeks ago fell out of a cradle, twisting her leg. For the past three weeks a swelling has been gradually forming just above the internal condyle of the left leg. Child strong and healthy; no specific history; abscess about the size of a walnut; joint motions good. Opened by free incision, and large amount of pus discharged; poultices ordered. Aug. 15th: Is perfectly well; joint motions good.

In cases where the formation of the abscess has not been very rapid, and is of great size, tissues glazed in appearance, superficial veins much dilated, cachexia extreme, acute arthritis of infants may easily be mistaken for malignant disease. Such errors have been reported by many competent observers. The use of the hypodermatic needle, the involvement of the neighboring lymphatics, the rate of growth, a careful examination of the tumor and surrounding tissues, and the motion in the adjacent articulation, if carefully looked for, will in all cases render a diagnosis clear, though it may at first seem difficult.

Tubercular osteitis of the hip, or hip-joint disease, is very rare under one year of age. Gibney<sup>1</sup> says that 61 out of 560 cases analyzed began before the second year, and that the disease is known to begin as early as the eighth month, but he is rather sceptical as to these very early cases being "chronic osteitis." In the early cases of hip-joint disease the reflex spasm is an important symptom. The osteitic cry and the less marked constitutional symptoms, also, are aids in diagnosis, and I think

<sup>1</sup> Gibney : Diseases of the Hip.

it doubtful if, with ordinary care, hip-joint disease can be mistaken for acute arthritis of infants.

**TREATMENT.**—Mr. Holmes<sup>1</sup> remarked in 1869 that “acute joint disease leads directly, and in childhood almost inevitably, to abscess, and it is in my opinion very important that this should be opened at the earliest possible moment.” To-day no better advice could be given. Once the diagnosis is made, the purulent collection, whether in the joint or the surrounding tissues, should be evacuated. Delays are dangerous. Free incisions, thorough drainage, and antiseptic precautions alone offer us any chance of successfully combating the disease. The incisions should be sufficiently large to permit thorough drainage. If the abscess has invaded the soft parts about the articulation, the incision should extend down to the bone, and by that, I mean through the periosteum; for underneath it the pus may still be confined. After the joint has been opened and drainage secured, it should be thoroughly washed out with some antiseptic solution, and, if necessary, drainage-tubes or tents of iodoformed gauze or horsehair should be used to prevent the pus remaining in the joint, should more be formed. If the necrosis persist, it may be necessary, either with a gouge or Volkmann spoon, to scrape out thoroughly the sinus leading to the dead bone, and then remove such diseased bone as may be present. If the sequestrum be so situated as not to be readily removed, a more extensive operation will be necessary.

If any fear of ankylosis occur, or the surrounding parts in cicatrizing tend to produce deformity, the use of a proper splint will be necessary to keep the limb in the best possible position. If the loss of bone be very great and the joint rendered useless thereby, the question of excision or amputation will be presented to the surgeon, or it may be necessary to decide upon some form of mechanical appliance suited to the case.

If the deformity produced be confined to the soft parts, section of tendons or of cicatrices may also be necessary. In addition to operative interference, the constitutional treatment should not be neglected. The patient's strength should be supported by stimulants, such as brandy or whiskey, carbonate of ammonium, morphine, and other suitable remedies, and during convalescence tonics should be prescribed. But the most important point is the early evacuation of the pus, whether in the joint, bone, or soft parts.

With the exception of the cases kindly furnished me by Drs. Brown, Huber, Marple, and Walser, all of the cases reported in this paper were seen at the Out-door Department of the Hospital for Ruptured and Crippled, New York, during the past year.

<sup>1</sup> The Surgical Treatment of the Diseases of Infancy and Childhood, by T. A. Holmes. London, 1869.

In all the following cases I have personally seen, a careful inquiry into the family history, and a careful examination of the patients, failed to reveal any evidences of syphilis. The measurements are all in inches. The letters R. A. mean the distance from right anterior superior spine of ilium to lower end of internal malleolus of right leg, L. A. the same on left leg; R. U. the distance from umbilicus to right internal malleolus, L. A. the same on left side; R. T. the circumference of right thigh; L. T. the circumference of left thigh; R. K. the circumference of right knee; L. K. the circumference of left knee; R. C. the circumference of right calf; L. C. the circumference of left calf; A. G. E. angle of greatest extension; A. G. F. angle of greatest flexion.

CASE I.—Charles Burley, ten months. Right hip. April 17th. Family history negative.

*Personal History.*—Two months ago mother noticed a “lump” in lower part of the back, which gradually extended to hip and then to the groin. Has had no treatment. Mother has had nine children—four living, five dead. Causes, cholera infantum and teething. Hygienic surroundings where family live are good.

*Examination.*—Child very much emaciated; has large abscess over outer side right hip, communicating with an abscess about the size of a small hen’s egg in groin, which presses the genitals over toward left side; veins over abscess are enlarged. At lower end near scrotum, abscess wall is very thin, and pus can be seen through the glazed skin.

Movements of hip, right side, are unusually free. Child very quiet during examination, and though right thigh is held flexed at about 120° movements do not seem to cause pain. No joint grating. Owing to the fact that child had to be taken home, a distance of some five miles, necessitating several transfers on horse cars and trip across a ferry, and that skin was so thin, it was thought best to allow abscess to open itself. Poultices were therefore ordered.

After the application of the second poultice the abscess opened and discharged freely, and the child seemed weaker. Ordered a very small amount of brandy in addition to the mother’s milk, as the child was still nursing.

*April 20.* Child very weak; very little difference in size between the two sides, right hip joint very movable, no grating in joint. Discharge from abscess consists of a thin, dark red fluid, and some thick pus. Both legs lie parallel on table. Opening through which discharge occurs is in right groin, oval in shape and about the size of a small pea.

*Post-mortem.*—(April 26th, twenty-six hours after death.) Child very much emaciated. Rigor mortis not well marked. Permission could only be obtained to examine hip under condition that nothing be removed.

Movements of right hip were freer than those of left. Having adducted the limb and rotated in, pushing it upward, it was found that it could be dislocated and the same easily reduced. Parts about hip were somewhat thickened; opening of abscess was about one-fourth by one-eighth of an inch, oval in shape, situated on inner side of right thigh on a level with Poupert’s ligament and about its centre. Passing probe in, it was found to pass upward and backward over the ligament and into the pelvis; withdrawing it, another sinus was found leading outward and

downward toward the hip-joint. No bare bone could be felt. By bending probe, it could be passed around the hip into gluteal muscles. An incision was made on outer side of thigh about four inches long, and careful dissection made down to bone. After cutting through skin, superficial fascia, and the fat, the muscular tissues were found filled with dark greenish thick pus. The capsular ligament was softened, yellowish-green in color, with one or two dark spots on front aspect of joint, evidently hemorrhages. Its attachment to rim of acetabulum was incomplete posteriorly, and portion where head of bone had come out was easily found. It was firmly attached to the trochanter major and to the front of the bone and inner side.

Cutting away the capsular ligament in front, then on inner side and outer side bone slipped out of acetabulum. The joint was full of very dark greenish pus. Ligamentum teres was completely destroyed, no trace of its attachment to femur could be discovered, and its acetabular attachment was only found after thoroughly wiping off the parts, when a small band was seen, much softened, yellowish in color, about one-eighth of an inch in length. The acetabulum was dull grayish in color, but smooth. Cartilage not destroyed.

On femur the cartilage of head was entirely destroyed except a small spot on upper surface, not over one-fourth inch in circumference. The rest of the head was dark brownish-red in color, rough, and especially so at lower portion. The bone below the trochanter minor was normal. Portion of head which was denuded of cartilage was softer than was the shaft of the bone. Abscess posteriorly occupied considerable portion of glutei muscles, and pus had escaped from joint posteriorly and worked round the bone and over thigh to a point where it opened.

CASE II.—Mary Muhlstein, two and one-quarter years. Right hip. May 16th. Family history negative.

*Personal History.*—When ten months old a small lump was noticed on outer side of right thigh, which rapidly increased in size until right thigh was twice as large as left. It was then opened (two months from beginning of trouble) and much matter discharged. It continued to discharge for a few days, then closed and has so remained. Has cicatrix over outer side of hip-joint. Child began to walk when eighteen months old, and has always walked lame.

R. A. 12½. R. U. 16. R. T. 10½. R. K. 8. R. C. 6½.

L. A. 13½. L. U. 16½. L. T. 10½. L. K. 8. L. C. 6½.

Right thigh can be pulled down so as to measure nearly thirteen. The trochanter is one and one half inches above Nélaton's line. No pain, motions good, child walks with a hip limp rather than the gait usually seen in congenital dislocation.

June 27. Condition unchanged as limbs lie parallel, and there is no apparent trouble in joint. Nothing is done but to keep up general nutrition.

CASE III.—Amelia Brunner, two years and ten months. Left hip. May 20th. Family history: father is phthisical.

*Personal History.*—When five months old it was noticed that child's toes were bent on left foot, and a few days afterward a swelling appeared over left hip. This increased in size gradually, until it was as large as an orange, and child pulled her leg up and has retained it in same position ever since. The swelling then began to extend downward toward knee, and knee became swollen. Swelling finally disappeared. Child

is in poor condition. Thigh flexed on pelvis at about  $120^{\circ}$ , and leg on thigh. Neither can be straightened. Trochanter one inch above Nélaton's line.

May 30. Under ether, leg and thigh were forcibly straightened, and plaster-of-Paris spica applied.

31st. New plaster-of-Paris applied, as one put on yesterday had cracked. Thigh extended to about  $150^{\circ}$ .

June 12. Hip-splint applied.

26th. New hip-splint applied; child beginning to walk, and thigh can be extended to about  $165^{\circ}$ .

July 10. Is wearing hip-splint, and walks about considerably. Ordered syr. ferri. iod., as she is pale.

August 1. Child looking well; appetite improved; wearing splint with comfort. Legs parallel.

Sept. 18. Some movement in hip and knee.

CASE IV.—Grace Callan, fourteen months. Right hip. June 18th.

*Family History.*—Father's brother died of phthisis. Mother had a cough. None of family ever died of phthisis.

*Personal History.*—Grace is the second child; labor normal. Is supposed to have fallen one month ago; no certainty on this point. Marked infiltration about right hip, skin bluish, and veins enlarged. All movements resisted.

A. G. F. 120. R. A.  $11\frac{1}{2}$ . R. U. 14. R. T. 9. R. K. 7. R. C. 5.

A. G. E. 160. L. A.  $12\frac{1}{2}$ . L. U.  $14\frac{1}{2}$ . L. T. 7. L. K. 7. L. C. 5.

Hypodermatic needle passed in until it touched bone, and some pus withdrawn. With aspirator one ounce of pus withdrawn; as no more could be evacuated, with antiseptic precautions an opening was made on outer side of thigh, and three ounces of pus discharged. Abscess extended up and down shaft of femur. At point of opening bone was covered by periosteum. Strips of iodoform gauze left in for drainage, and bichloride gauze and bandages applied over this.

June 21. Wound dressed to-day, and about one-half ounce of pus in dressings. Parts thoroughly washed out. Probe does not touch bone. Dressed as before. Legs parallel; flexion resisted at about  $110^{\circ}$ . General condition of child much improved.

July 9. Wound entirely healed; joint motions good.

CASE V.—Stanley Le Mair, aged fifty-eight days. Right knee. May 20th.

*Family History.*—Mother's brother died of phthisis. Father's brother died of phthisis. Father has a cough.

*Personal History.*—When sixteen days old, child's left knee began to swell, swelling then extending down the leg and up the thigh. Child was feverish and fretful. Three weeks ago the abscess broke on the inner side of the knee-joint, and just below it; discharged freely, and is still doing so. Second day after discharge appeared, a small piece of bone came away.

R. K.  $6\frac{1}{2}$ , 6,  $5\frac{1}{2}$ . ( Leg is held flexed, and can only be extended to  
L. K. 7,  $6\frac{1}{2}$ ,  $6\frac{1}{2}$ . ) about  $150^{\circ}$ .

Just before the abscess on the knee opened an abscess appeared over sternum, which broke in a few days, and cicatrix shows clearly now over sterno-clavicular articulation, right side. Poultices applied to knee.

May 29. Small abscess on anterior surface of leg below knee-joint



opened. Probe passed through sinus; goes downward and backward to bare bone. Poultices reapplied.

June 2. One small sinus discharging. Dressed with iodoform gauze.

14th. Small piece of bone removed last night from lower sinus. Child doing well.

July 9. Very slight discharge; joint freely movable. Child's general health improved.

17th. Some restrictions to joint movement. Straight plaster-of-Paris splint applied.

CASE VI.—John Arnot, three months. Left hip. June 19th.

*Personal History.*—When five weeks old a lump appeared on outer side of left thigh, over trochanter, which was opened and pus evacuated. Patient also comes to hospital for a double hydrocele. Motions of left hip are all restricted, but possibly from soreness left after the incision.

June 26. Child doing fairly well. Has abscess over posterior surface of left hip-joint. As mother objected to its being opened, poultices applied.

29th. Abscess opened to-day; needle passed into hip-joint; one ounce of pus evacuated. Prepuce dilated, as phimosis existed.

July 3. Opening healed; motion of joint good; much improved.

CASE VII.—Frank Rex, eight months. Right hip. June 11th.

*Family History.*—Mother's father and sister died of phthisis. Father's family healthy.

*Personal History.*—Child weak and in poor condition. About four weeks ago an abscess formed in right groin, and opened in a few days. This soon closed, and child kept thigh flexed to about 120°. At present all motions of joint are restricted; there is infiltration over upper part of thigh, and inguinal glands are enlarged. Thigh can be forcibly extended to about 150°; leg slightly flexed on thigh.

R. T. 7. R. K. 7. R. C. 5½. { Right trochanter is about one-half inch  
L. T. 6. L. K. 6. L. C. 5½. { above Nélaton's line.

On inner side of thigh is a cicatrix where abscess first opened. One week ago an abscess formed at umbilicus, about the size of a cherry, and has been discharging ever since quite freely, and seems to connect with the old abscess of groin. Child cries at night; nurses well, but sleeps poorly. Ordered hot fomentations, and to return in two days. Never returned. Efforts were made to trace this case, but we were never able to find it. I think the child probably died.

CASE VIII.—Euphemia Campbell. Left hip. June 10th.

*Family History.*—Maternal good. Paternal good. The tenth child; seven living; two died of diphtheria; other, cause unknown.

*Personal History.*—When one month old had an abscess over left hip; thigh swollen to twice its natural size. Abscess opened by a doctor in East Fifty-third Street. It continued to discharge for four weeks, then healed. Cicatrix about one-half inch long on outer side of thigh. Trochanter three-fourths inch above Nélaton's line.

R. A. 12½. R. U. 14. R. T. 11. R. K. 8.

L. A. 12. L. U. 13½. L. T. 10. L. K. 8.

The left leg can be pulled down one-half inch.

CASE IX.—Morris Folby, ten months. Right knee. July 6th.

*Family History.*—Paternal good; maternal good.

*Personal History.*—Mother first noticed signs of pain in knee one week ago. Knee became slightly flexed and swollen; cold was applied, but

swelling still increased. Now measures one inch more than opposite knee. Fluctuation positively made out. Hypodermatic needle inserted just under patella, and also above and to inner side of joint, and to the bone, but no pus found. Ordered poultices, and to report in forty-eight hours.

Case then passed into hands of Dr. Silver, of New York, who informs me that he opened the joint, found thin pus and flakes of lymph, washed it out thoroughly, inserted drainage-tubes, and encased the limb in plaster-of-Paris, and that the child made an excellent recovery, and has a good movable joint.

CASE X.—Walter McCorm, six years. Seen at Nursery and Child's Hospital, S. I., through the kindness of Dr. W. C. Walser.

*Personal History.*—At three months of age the child had an abscess of right knee, which was lanced at Nursery and Child's Hospital, N. Y. The discharge kept up for a long time, and mother was advised to have the leg amputated, but would not consent. When five months of age was taken to Roosevelt Hospital, and treated, the discharge gradually becoming less, till at eighteen months of age the openings were healed. Has been treated by straight splint, plaster of-Paris, and also by a brace.

Sept. 8. Boy examined to-day. Is in fine physical condition. Right knee has some lateral motion, but very slight; other movements unusually free. Some grating when joint is moved.

R. A. 19. R. U.  $22\frac{1}{2}$ . R. T.  $11\frac{1}{4}$ . R. K. 9. R. C.  $8\frac{1}{2}$ .

L. A. 20. L. U. 23. L. T.  $11\frac{1}{2}$ . L. K.  $8\frac{3}{4}$ . L. C. 8.

From interior condyle of right leg to interior malleolus,  $7\frac{1}{4}$ .

From exterior condyle of right leg to exterior malleolus,  $8\frac{1}{2}$ .

There being a marked bowing of the fibula outward, due to the fact that it has continued to grow, and tibia has not, at its upper end, as its epiphysis has been destroyed, and as fibula is attached above and below, it has been forced to bend outward. Boy walks slightly lame, with a high shoe on shortened limb.

CASE XI.—Bertha Lavers, aged ten years. Right hip. August 13th.

*Family History.*—Paternal good; maternal good. Five of family living and in good health. Hygienic surroundings, tenement house.

*Personal History.*—Health during infancy, good. Dates of vaccinia, 1880, rubeola, 1884, diphtheria, 1885. Present disease: date of inception, when eight days old.

The right thigh became swollen and red without any known cause. Swelling was about the size of an orange and extended up on to nates. At the end of two weeks it was lanced, and a cupful of fluid evacuated. For three months afterward thigh was held flexed on abdomen, and finally leg was straightened by weight and has remained so.

R. A. 21. R. U. 24. R. T. 11. R. K.  $8\frac{1}{2}$ . R. C. 8.

L. A. 23. L. U.  $25\frac{1}{2}$ . L. T.  $13\frac{1}{2}$ . L. K. 8. L. C. 9.

Head of bone two and one-half inches above Nélaton's line on right side. Flexion good, abduction about half normal, adduction good.

CASE XII.—Female, one month, nine days.

*Personal History.*—Abscesses in both sterno-clavicular articulations, bones eroded, umbilical vein before entering liver impervious, and after reaching it dilated and distended with pus.

Before death the cause of purulent effusion into the joints was considered to proceed from trouble in umbilical vein. The *autopsy* was made

by Dr. Thacher, and permission to quote the case kindly given by Dr. Marple, Physician-in-Chief to State Emigrant Hospital, Ward's Island.

CASES XIII., XIV.—Two cases of arthritis of hip due to suppuration at umbilicus. Related to me by Dr. Huber, of New York. Both of these cases terminated fatally.

CASE XV.—Case of metatarsophalangeal articulation, big toe, complicating empyema. Related to me by Dr. Huber.

The two following cases were kindly furnished me by Dr. Dillon Brown, of New York.

CASE XVI.—Male, nine months. Left hip. Seen May 16, 1886. Family history negative. No cause known for the disease. Supposed to have come from a cold.

*Personal History.*—Mother's attention was first attracted to the child's trouble by his complaining of pain in the left hip, which was not benefited by change of position and gradually grew worse. Parts became tender, a swelling appeared which was very tense, though fluctuation was easily detected. The superficial veins over it were enlarged and the outline of the tumor lobulated like a sarcoma, most prominent portion being over anterior surface of thigh. Motions of the joint were painful and restricted. Circumference of left thigh three and one-half inches from anterior superior spine, eight inches. Circumference of right thigh three and one-half inches from anterior superior spine, seven inches.

June 3. Abscess opened, and thin watery pus evacuated.

5th. Abscess opened and contents completely evacuated. Motions at joint improved. Child in very poor condition; emaciation extreme; was having night-sweats and diarrhoea, but eventually made a good recovery.

CASE XVII.—*Autopsy* on case of acute arthritis of infants, New York Foundling Asylum. Male, eighteen months. Child much emaciated, though had succumbed rapidly to the disease. Motions in left hip-joint good, upper epiphysis of femur was detached from the shaft of the bone, and tissues in and around the joint were infiltrated with pus.

CASE XVIII.—Robert Casey, four months. October 4th. Hygienic surroundings, tenement house. Family history, good.

*Personal History.*—Is a seven-months' child, one of twins. Was perfectly well until one week ago, when mother noticed child was cross. No cause known for it. Day before yesterday ring-finger of left hand began to swell, and next day the right wrist; child was feverish; appetite good; cries continually and is losing flesh.

*Examination.*—Ring-finger of left hand is swollen, red; fluctuation detected; is held flexed; swelling is greatest at junction of first and second phalanges, no swelling of hand. Right wrist swollen, on ulnar side swelling is greatest, extra heat, some tenderness apparently. Child looks poorly. Temperature  $101^{\circ}$ , pulse 120.

*Treatment.*—Finger opened by incision on dorsum, which was made to extend into the joint, and about fifteen to twenty drops of yellowish pus evacuated. No bare bone felt. Wrist-joint opened on ulnar side, bare bone felt at lower end of radius and no pus evacuated until point of bistoury was pushed into the lower end of radius. Antiseptic precautions were used; joints thoroughly washed out with bichloride solution, and dressings applied.

October 7. Both wounds looking well. Discharge very slight. Temperature  $99\frac{1}{2}^{\circ}$ .

15th. Wrist healed, finger swollen as drainage is imperfect. Several

horsehairs which had been antiseptically prepared were passed through the joint.

27th. Horsehair removed; no discharge on dressings, finger very little larger than normal.

In this case a specimen of the pus was sent to the laboratory of the New York Polyclinic for examination, and Dr. Tuttle, who examined it, reported as follows: Specimen examined October 11th, stained by simple method and by Gram's method, showed scattered about through the field and occurring in large groups, staphylococci identical in every respect with the staphylococcus pyogenes aureus and albus, and besides these a much larger coccus occurring singly or in short chains or groups, variety not known.

CASE XIX.—Sarah Neufeldt, two months. September 30th. Hygienic surroundings good. Family history negative.

*Personal History.*—Present disease began six weeks ago, cause unknown. Right knee and both wrists were swollen, knee flexed, wrists held in normal position. Child was taken to a dispensary in town, and on outer side of knee-joint an incision was made and pus evacuated; cicatrix shows plainly; wrists are both swollen and contain pus, as shown by fluctuation, extra heat, and redness. As we would not take child into hospital, mother refused to have anything done. Child in fair condition. Temperature not taken.

The table on page 21 gives the cases that I have been able to find.

Of these 71 cases . . . . . 32 died, or 45 per cent.

In 52 cases one joint only affected:

Of these 52 cases . . . . . 18 died, or 34 per cent.

In 19 cases more than one joint affected:

Of these 19 cases . . . . . 14 died, or 73 per cent.

Sex specified in 49 cases: 31 males, 18 females.

The joints most frequently affected were:

Hip . . . . .	37 times.
Knee . . . . .	26 "
Shoulder . . . . .	12 "
Wrist . . . . .	5 "
Elbow . . . . .	4 "
Ankle . . . . .	4 "
Finger-joint . . . . .	2 "
Toe-joint . . . . .	1 "
Sterno-clavicular joint . . . . .	1 "

NOTE.—To the above should be added two cases reported by Ashby and Wright,<sup>1</sup> in children 9 months old, one at hip and one at knee, both of which recovered, and which, if taken into account, slightly alter the results.

<sup>1</sup> Diseases of Children. Manchester, 1889.

Joints affected.	Age.	Sex.	Result.	Reported by	Reference.
1. Left knee . . . . .	4 w'ks	M.	Died,	T. A. Smith,	St. Barth. Hosp. Rep. vol. x.
2. Right knee, left knee, left elbow, left ankle . .	"	M.	"	" "	" " " "
3. Both hips, right shoulder	9 mos.	M.	"	" "	" " " "
4. Right hip, right wrist . .	6 w'ks	F.	"	" "	" " " "
5. Left hip . . . . .	8 mos.	M.	"	" "	" " " "
6. Left hip, right knee . . .	3 w'ks	F.	"	" "	" " " "
7. Right shoulder . . . . .	10 "	M.	"	" "	" " " "
8. Right hip . . . . .	7 "	M.	"	" "	" " " "
9. Right hip, right wrist . .	4 "	F.	"	" "	" " " "
10. Shoulder . . . . .	6 mos.	M.	"	" "	" " " "
11. Left hip, right shoulder	4 w'ks	...	"	" "	" " " "
12. Left knee and a finger- joint . . . . .	5 "	M.	"	" "	" " " "
13. Both hips, elbow, and ankle . . . . .	3 "	F.	"	" "	" " " "
14. Left hip . . . . .	5 mos.	M.	Recov.	" "	" " " "
15. Left hip . . . . .	3 "	M.	"	" "	" " " "
16. Left hip . . . . .	7 "	F.	"	" "	" " " "
17. Knee . . . . .	5 "	M.	"	" "	" " " "
18. Knee . . . . .	10 w'ks	M.	"	" "	" " " "
19. Knee . . . . .	6 mos.	M.	"	" "	" " " "
20. Knee . . . . .	1 year	M.	"	" "	" " " "
21. Right shoulder, left el- bow, and left ankle . . .	9 w'ks	M.	"	" "	" " " "
22. Hip . . . . .	18 mos.	...	Died,	Judson,	N. Y. Med. Journ., Dec. 1878.
23. Hip . . . . .	8½ "	F.	Recov.	Gibney,	Diseases of the Hip.
24. Left hip . . . . .	10 "	M.	"	" "	" "
25. Hip . . . . .	3 w'ks	...	Died,	MacNamara,	Dis. of Bones and Joints, 1881.
26. Left knee . . . . .	5 mos	M.	"	Barwell,	Dis. of Joints, 1881.
27. Shoulder . . . . .	3 w'ks	...	"	MacNamara,	Lancet, 1879, ii, 231, 237.
28. Left knee . . . . .	8 mos.	...	Recov.	G. Brown,	Clin. Soc. Trans., ix, 175.
29. Knee . . . . .	.....	...	"	Dr. Berlin,	South. Pract., Nashville, 1885, vii, 72, 75.
30. Knee . . . . .	2 mos.	...	Recov.	J. Abercrombie,	Trans. Path. Soc., London, 1881, xxxii, 192.
31. Right shoulder, right hip	13 "	M.	Died,	Charles Atkin,	Med. Press and Cir., London, 1885. [No 43.]
32. Right knee and left elbow	7 w'ks	F.	"	Krause,	Berl. klin. Wochen., 1884,
33. Right knee . . . . .	6 mos.	...	Recov.	W. Marrant Baker	St. Barth. Hosp. Rep., 1880.
34. Left hip . . . . .	12 "	F.	Died,	Krause,	Berl. klin. Woch., 1883.
35. Metatarsus, 1st and 2d . .	14 days	F.	"	Huber,	Archiv. f. Path. Anat., Ber., 1882.
36. Knee . . . . .	9 w'ks	...	Recov.	W. Marrant Baker	St. Barth. Hosp. Rep., 1880.
37. Knee . . . . .	4 mos.	...	Died,	Owen,	Lancet, 1871, i, 246
38. Shoulder . . . . .	8 "	...	Recov.	Owen,	Surgical Dis. of Children.
39. Right hip . . . . .	6 "	M.	Died,	Wilmott,	Australian Med. Journ., 1882.
40. Hip . . . . .	7 "	...	Recov.	Holmes, T. A.,	Surg. Treat. Dis. of Children.
41. Left knee . . . . .	11 w'ks	F.	Died,	Wright, G. A.,	Lancet, 1881, ii, 127.
42. Right hip . . . . .	13 mos.	F.	Recov.	"	" " " "
43. Right shoulder . . . . .	19 days	F.	Died,	"	" " " "
44. Hip . . . . .	.....	...	Recov.	Howard Marsh,	Dis. of the Joints, Am. ed.
45. Hip . . . . .	.....	...	"	"	" " " "
46. Hip . . . . .	.....	...	"	"	" " " "
47. Knee . . . . .	.....	...	"	"	" " " "
48. Knee . . . . .	.....	...	"	"	" " " "
49. Knee . . . . .	.....	...	"	"	" " " "
50. Both hips, right knee, both shoulders . . . . .	3 days	M	Died,	Terrisse,	Thèse de Paris
51. Right hip, both knees, left ankle, and wrist . .	4 "	M.	"	"	" " " "
52. Left knee . . . . .	6 "	M.	"	"	" " " "
53. Right hip . . . . .	10 "	F.	Recov.	Gibney,	Med. Rec., March 5, 1880.
54. Right hip . . . . .	10 "	M.	"	Townsend.	"
55. Left hip . . . . .	5 "	F.	"	"	"
56. Right hip . . . . .	14 "	F.	"	"	"
57. Left knee and right ster- no-clavicle . . . . .	58 days	M.	"	"	"
58. Left hip . . . . .	5 w'ks	M	"	"	"
59. Right hip . . . . .	7 mos.	M.	"	"	"
60. Left hip . . . . .	1 mo.	F.	"	"	"
61. Right knee . . . . .	10 mos.	M.	"	"	"
62. Right knee . . . . .	3 mos.	M.	"	"	"
63. Right hip . . . . .	8 days	F.	"	"	"
64. Sterno clavicle (both) . .	39 days	F.	Died,	"	"
65. Hip . . . . .	.....	...	"	"	"
66. Hip . . . . .	.....	...	"	"	"
67. Metat. phalang. big toe .	.....	...	Recov.	"	"
68. Left hip . . . . .	9 mos.	M.	"	"	"
69. Left hip . . . . .	18 "	...	Died,	"	"
70. Right wrist and finger- joint . . . . .	3 "	M.	Recov.	"	"
71. Right knee, both wrists	2 "	M.	"	"	"

CONCLUSIONS.—From a study of the disease I think the following conclusions may be drawn:

1. Acute arthritis of infants occurs most frequently during the first year of life.
2. It is pyæmic in character, an osteomyelitis of infant life, and is caused by one of the forms of staphylococci, most frequently the staphylococcus albus or aureus; may follow traumatism or the exanthemata.
3. The most frequent site of infection is the epiphysis near the joint, which in early life is frequently intracapsular.
4. The disease progresses rapidly, and nearly fifty per cent. of the cases have terminated fatally, the most frequent cause of death being exhaustion.
5. A more or less complete destruction of the "joint end" of the bone, pathological dislocations, flail-like joints and loss of length of limb, rarely ankylosis, are the most common results of the disease.
6. Disease is most frequently met with in hip, knee, and shoulder.
7. As soon as the disease is recognized the pus should be evacuated promptly, the joint properly drained and parts dressed antiseptically.
8. The treatment of resulting deformities should be conducted on general orthopædic principles.

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## EARLY DIAGNOSIS OF CHRONIC KIDNEY LESIONS.<sup>1</sup>

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WHAT means have we at present to determine that a patient has some chronic disease of the kidneys?

What is the relative value of these agents, and how far can they be depended upon in the diagnosis of individual cases?

These are questions that are certainly very important to every one who, in any way, bears relation to these diseased conditions, and should be answered as far as it may be possible for us to answer them.

Let us first look at the relative value of albumin in the urine as a diagnostic sign of disease. At one time the discovery of albumin in this excretion was considered an almost fatal omen, but now the area of its deadly significance has been so circumscribed in many particulars, that it no longer is pathognomonic of even a serious lesion of the kidneys. Indeed, we are now looking upon this excrementitious product in two widely different ways, as physiological and pathological. So far as we now know, a certain small quantity of albumin in the urine is not incompatible with health, even though it occurs at frequent intervals for a long period of time. Generally, it is true that this so-called physiolog-

<sup>1</sup> Read before the Mississippi Valley Medical Society, September 12, 1889.

ical product is the result of abnormal physical conditions; as, for example, the consequence of severe bodily exercise or undue mental strain. Persons passing such small quantities of albumin for months, or even years, have had a sudden cessation of this excretion and have never more been so disturbed, and, consequently, it could not have been the result of serious kidney lesions. The fact, however, that these small quantities of albumin occur often in other well-recognized pathological conditions in parts remote from the kidneys, is very significant, and points, if in any direction, toward a common pathological condition involving large areas of the body. When the facts are all in, we need not be surprised if this so-called physiological albumin is a factor in the early diagnosis of widely diffused pathological changes, which occur in common with kidney lesions in the initial stage. Our knowledge, as yet, is too meagre, however, to affirm this conjecture, and we must at present regard this excretion in the light of suspicion without attaching much importance to its diagnostic value.

Pathological albumin, on the other hand, has received too much credit as a guide to structural renal diseases, and within the last few years has lost its former dread and cannot longer be considered as pathognomonic of kidney lesions. That it occurs often in these diseases cannot but be affirmed by all careful observers; still the cases are quite numerous that either do not present this diagnostic sign at all during the course of the disease, or fail to do so at longer or shorter intervals during the progress of very destructive changes in these organs. Post-mortems have developed the fact that many persons have died from evident kidney diseases without the fact becoming apparent by careful examinations of the urine for albumin at frequent intervals. Again, albumin is found in the urine in large amounts without necessarily emanating from diseased kidneys, such as is caused by the hydrostatic variation in these organs incident to cardiac or lung lesions, pressure of tumors, or from irritation in the central nervous system. Albumin may also occur as the result of systemic disturbances, such as the infectious fevers, and may pass away with the general convalescence, or may remain as an evidence of a permanent lesion. Some local disorders involving the urethra, bladder, or ureters, furnish often abundant evidence, if not recognized, of serious destruction of the kidneys,—as gonorrhœa, cystitis, and other inflammatory diseases.

In well-marked Bright's disease, albumin generally is found some time during its course, yet the variation of this product makes diagnosis often uncertain, if this were the only means at our command. This albumin varies from day to day, being great at times and almost absent at others; occurring in the morning urine and not in the evening, or the reverse may be true. It may be found in some varieties of Bright's disease, and scarcely if ever in other forms of this malady. The albumin most sought in these tests is common to all the cases included under chronic Bright's

disease, and is also common to the acute forms of the same, and cannot therefore be held as a definite diagnostic sign of any of these diseases, or as an unvarying factor in differentiation.

As Bright's disease is, according to my belief, the result of constitutional disturbances which involve at first nutrition and thereby the general integrity of the tissues and consequently of the kidneys, it is evident that by the time albumin makes its appearance in the urine the disease has, in all chronic forms, gone on for some time, and while we must acknowledge the importance of albumin in the urine at this time as quite conclusive, with the exceptions noted, still at this stage many of such patients die after a series of explosions, which intervene at longer or shorter intervals, and consequently the knowledge so gained is of very little value to the patient, however interesting it may be to the scientific physician.

If we look for casts, in our effort to evade a fatal malady, we find that we are in equally as great a dilemma, since casts are the consequence of the uncertain conditions already referred to, with additional uncertainties. Casts may be found very abundant in the beginning of serious lesions of the kidneys, or very few in number. They may be absent altogether. If casts are found, albumin has already appeared in the urine and given its warning, and consequently casts must rank second as evidence in the early diagnosis of chronic kidney lesions. The character of the cast often, no doubt, enables us to differentiate between the varieties of chronic Bright's disease, and may give knowledge also of the length of time the inflammatory conditions have existed, all of which again profits the patient but very little. We have in all cases to deal with a chronic inflammation which is diffuse, and while it involves different tissues in the beginning, and has often a different history, still very soon enough of the kidney structure is involved or encroached upon to produce in all cases the same clinical results, and so far as the early differentiation of these varieties is concerned, it is of scientific value rather than an aid in our present need.

Several papers have been written during the past two years in support of the specific gravity of the urine as a diagnostic sign of chronic kidney lesions, and some notion akin to this has crept into books bearing the names of prominent authors. The specific gravity of the urine could mean nothing more than the relative measure of all the elements held in solution. Therefore, if a urine was of relatively low specific gravity, it might mean that the quantity of water passed was very great, or that the products held in solution were few. These products might bear almost any relation to each other; that is, the urine might be loaded with phosphates and be relatively quite heavy, while the quantity of urea, carbonate of ammonium, uric acid, and other suspended salts might be very small in amount. If it be true that the specific gravity bears any relation to diseased kidneys, it must be the mean spe-



cific gravity of many often-repeated examinations of known quantities of urine for given times, as it would then indicate something of a measure of the total toxicity of the salts held in the blood, or the permeability of the kidneys. My experience has been that urine passed by patients with evident kidney lesions is frequently of relatively high specific gravity, due generally to large quantities of the phosphates, or carbonates, or both. If often-repeated examinations of urine from the same patient should show, however, a constantly low specific gravity for normal quantities of urine, it would then point to some disturbance in the excretory organs, or that some one or more of the salts were not produced in normal quantities in the blood. Since, however, urea—if not the only product excreted having toxic influence—is diminished in cases of serious lesions of these organs, and generally is the dominant salt, it would be fair to state, that all other products being excreted in their normal quantities, the urine would have a more or less relatively low specific gravity when compared with the known daily quantity of urine excreted. The specific gravity without this knowledge would be of little, if any, value in the diagnosis of such lesions. And none of the writers, so far as I am aware, have taken these conditions into consideration.

No diagnosis of these lesions can be complete without a perfect knowledge of the outward symptoms of the patient, and the value of any other knowledge must depend upon a constant relation which is found to exist between these physical conditions of ill health and the defect in excretion. If it were possible, in other words, for a patient to pass albumin and casts for years and no signs of ill health intervene, it would go far to disprove the value of these as a diagnostic sign of pathological conditions in that individual, and if this were the rule no importance could be attached to their excretion in the urine. It is fortunate, therefore, that during the time, at least, that these products are being thrown out, the patient has well-marked symptoms of ill health. It is still more fortunate that these outward manifestations of disease are the first presented, and are more or less constant, not only in the individual, but for the whole group so passing albumin and casts. While there are occasional exceptions to this rule that make differential diagnosis difficult in the beginning, still there is such a constant association as to be in great part relied upon at this stage of the disease. These symptoms are dyspnoea, vertigo, blindness, nausea, vomiting, swelling of extremities or face, twitching of any or all muscles, a feeling of being constantly tired without exertion, pain in intercostal region or extremities, headache, smarting pain on passing water, with frequent desire to urinate, a constant tendency to inflammations of serous membranes, with frequent evidence of some form of these inflammatory results upon careful physical examination. All of these symptoms go to make a picture of typical cases of persons suffering from these lesions, yet the presence of two or more constant symptoms, if accompanied with albumin and casts, will complete with

accuracy the diagnosis of the case. The association, therefore, of these external evidences constantly with the excreted evidence, leads us to know to a reasonable certainty that one group being found in such well-marked cases, the other is sure also to be present. In milder cases, however, the excretory evidence is not always found, still these patients are suffering with evident diagnostic signs of diseased kidneys, and faithful examinations for a long time will generally be rewarded by this additional confirmatory evidence. At this stage, however, many of our patients die, and it seems sad indeed that so much effort has been expended without a greater benefit accruing to the sufferer.

It was at this point that more than five years ago I began to inquire why it was that patients answering in many respects those with marked kidney lesions, did not confirm this diagnosis by also passing albumin and casts, and what was the diagnostic sign that should bind these two groups of patients in one common class.

Authorities at this time stated that excess of urea was found in the blood of patients dying from these lesions, and that a lessened quantity was daily excreted in cases having the additional evidence of albumin and casts, and yet no careful records, so far as I know, had been made of the pathological variations of urea for definite quantities of urine for twenty-four hours, and extended at frequent intervals for months and years, for this class of patients. Authorities even now put no especial stress on the amount of urea as a diagnostic sign of chronic kidney lesions. In reviewing my records of cases for these years, I find that not a case appears in which other evidence, as albumin and casts, was present, that has not shown a constantly diminished average quantity of urea excreted in twenty-four hours, and I now regard this evidence as constant, whereas the others are variable.

Diminished quantities of urea excreted for twenty-four hours and continued for some months, in persons otherwise healthy and living on a mixed diet, can be taken as pathognomonic of kidney lesions, and this condition may exist in individuals giving no other evidence in the urine of such disease. After months of careful and painstaking efforts we may have our curiosity gratified by finding that the patient passes albumin or casts for the first time. If several such patients have followed the same doleful road and we have found albumin at frequent intervals in pathological quantities, and after their deaths have made post-mortems that demonstrated chronic nephritis, we can then say, we think with great force, that this pathognomonic evidence that exists together with albumin is also the evidence of serious conditions that precede these fatal cases. If, now, these patients who do not pass albumin or casts have other pronounced symptoms, such as vertigo, nausea, general weakness, cedema, as in well-marked cases, with absence of all other signs of disease, after careful examination, we would have the right to affirm that there

was a very intimate relation between these two classes of patients, if they are not indeed, in other respects identical. I am as certain as I can be of anything, after careful study and something over a thousand examinations, that this relation does exist, as I have verified it many times among these patients; having had patients after two or three years, with all outward evidences of these lesions, suddenly begin passing albumin and casts and finally die of what a post-mortem showed to be chronic nephritis.

I do not know whether urea is the only irritating agent in these cases, and that creatin or creatinine be the form in which it finally produces its injurious results, or whether it is simply the expression of a constitutional disease which is in common with the kidney lesions. What I do know is, that there is always a relation existing, as shown by clinical observation and careful tests, between small eliminated quantities of urea and the general ill feeling of the patient, and that this same relation holds equally good whether patients are now passing albumin and casts or whether they are free from this symptom, and that the only thing needful in urinary tests is a record of these diminished quantities of urea for twenty-four hours, for long periods of time, together with the symptoms. It is very remarkable that these two factors, *i. e.*, the symptoms and the knowledge of urea, should be interchangeable, *i. e.*, if a patient passes constantly small quantities of urea, living on a mixed diet and otherwise healthy, we can predict with certainty that such patient will complain of some of the prominent symptoms before referred to in this paper, as belonging to chronic lesions of the kidneys, even months and years, it may be, before other urinary diagnostic signs make their appearance. So well established do I consider these deductions, that I deem it no longer necessary when such a patient presents himself, to wait until albumin and casts are passed, to begin a vigorous line of treatment, to try, if possible, to avert the result that often obtains otherwise after a longer or shorter time.

This brings me to another and very valuable means at our command so thoroughly to circumscribe this disease that we know it can be no other; and I now refer to treatment. If there be a doubt left concerning the diagnosis of a case passing constantly ten or twelve grammes of urea in twenty-four hours, and otherwise healthy, with the accompanying signs of vertigo, nausea, general weakness, pallor, and dyspnœa, a few doses of a saline cathartic will effectually dispel it, as the remedy has never played any important curative place in anæmia and general weakness from other causes. Such a patient after free evacuation of the bowels will become steady, have a better appetite, lose the dyspnœa, and become stronger. If now a diuretic be given, and the renal structure is not too much involved, the patient will pass after a few days an increased quantity of urea, and just in proportion as the urea increases will the bad symptoms be ameliorated. Would we treat patients with these

symptoms from other causes in that way? What makes the proof doubly strong is the fact that many of these patients have gone the rounds for years among doctors who have tried to redden their lips with iron and other tonics, but still the same pallor existed, and because no casts or albumin could be found in the urine at one or two examinations they put a pessary into the vagina, or discovered a deep rectal ulcer. A climacteric must be passed, or puberty was involved. The patient had dyspepsia or pernicious anæmia, that with the burden of drugs grew no better. What is most gratifying, is, that after proper treatment many of these patients, who answer in all other respects to well-defined Bright's disease, grow better and, according to all tests, are apparently well. A few remain about as when first found, and a still smaller class pass albumin and casts and die according to the rule with such cases.

In papers read before the Indiana Medical Society, in 1886 and 1887, and again before the Mississippi Valley Medical Society in 1888, I stated that I believed, that from all the evidence that I then had, Bright's disease was not simply a lesion in the kidneys, but that more or less extensive areas were involved primarily, and that the kidney lesions were simply a part of this general condition. I am glad to say that there is a growing tendency among the profession to this view, and when all the facts are in concerning these constitutional disturbances, we will know more of other diagnostic signs that precede the more serious illness. If it be true, as I believe and have advocated in these papers, that extensive inflammatory changes take place in serous membranes at or before the time the kidneys are involved, then the evidence in other regions of the body would lead to the conclusion that if the kidneys are not so diseased, such a condition was threatening or probable, or at least possible, and we should then advance one more step in the diagnosis of this deadly disease. It is quite probable that some irritant or irritants first appear in the blood to affect nutrition and thus bring about these extensive changes, but I am unable to affirm this conclusion. What I do know is, that at or preceding the time these changes are taking place in the kidneys, evidence may often be found in other regions of the body of inflammation of serous membranes, and that, associated with these phenomena, urea is eliminated during twenty four hours in much smaller quantities than in health.

I therefore, in conclusion, present the following synopsis, which, so far as pertains to my efforts in these investigations, I submit for proof or disproof.

Albumin in the urine probably means disease somewhere in the body. In so-called physiological quantities it probably may be referred to disease removed from the kidneys, and is as transient as the cause. In pathological quantities it signifies either inflammation external to the kidneys or a lesion of these organs. Many patients do not pass albumin with evident kidney lesions. Albumin is inconstant and bears no rela-

tion to the extent of the lesion, but when present must be respected as a prominent factor in diagnosis. It generally makes its appearance a long time after other well-marked symptoms have existed, and the disease is grave when it exists in pathological quantities and should not therefore be waited for.

Casts bear an intimate relation to albumin, but appear later. They are strong proof of renal inflammation, as they carry, usually, a part of its epithelium. Differential diagnosis of the varieties of kidney lesions can often be made from this fact, but casts, like albumin, are inconstant, many patients not passing them at all, and they always appear too late to be a factor in early diagnosis.

The specific gravity of the urine is not to be relied upon unless the mean specific gravity of many specimens is taken of known quantities of urine for twenty-four hours. This would mean a small amount of urea passed within this time, since it is the dominant salt eliminated; Therefore, why not test for urea at once?

Some outward manifestations of ill health always precede for some time, often years, the passing of albumin and casts. These symptoms are in common with well-marked kidney lesions and are not due to other discoverable physical causes. Cases often, without a change in these symptoms for years, begin passing albumin and casts. It is fair to assume, therefore, that the symptoms referred to are the result of some common cause, which precedes the pronounced kidney lesions. This common cause seems to be something which produces extensive and often remote inflammations of serous membranes, which at the time, or remotely, involves the kidneys. What this cause is, we can at present only conjecture, but many of its pathological effects might be turned to advantage in early diagnosis.

Urea is excreted in abnormally small quantities in cases of well-marked kidney lesions. It is also so excreted in cases having the prominent physical symptoms without albumin and casts. It is interchangeable as a means of diagnosis with the outward signs of the disease, *i. e.*, a knowledge of the condition of ill health being also a knowledge of the amount of urea passed, and *vice versa*. Urea is excreted in small quantities months and often years before albumin and casts appear and therefore a knowledge of this excretion is invaluable as a diagnostic sign of early lesions. The diminished quantity of urea eliminated is the result of the constitutional disturbances which precede for long intervals of time the local lesion. Active treatment which would not be beneficial in other diseases having some symptoms in common, identifies this, generally relieves, and frequently apparently cures.

A brief reference to the following table will doubtless make these statements more intelligible and show from what source they are derived.

## FIFTY CASES PASSING SMALL QUANTITIES OF UREA THAT HAVE BEEN UNDER OBSERVATION FROM TWO TO FIVE YEARS.

TABLE I.—*Patients passing large quantities of albumin with casts and excreting constantly small quantities of urea, who finally die.*

No.	Age.	Sex.	Years under observation.	Examination of urine.										Prominent symptoms.	Complications.	Treatment.	Termination.
				Number of examinations	Aver. ounces in 24 hours.	Albumin.	Casts.	Aver. specific gravity.	Aver. per cent. of urea.	Aver. grams of urea in 24 hrs.	Min. grams of urea in 24 hrs.	Max. grams of urea in 24 hrs.					
1	56	M.	...	10	16	Yes	Yes	1018	2½	12	7	14	General weakness, headache, nausea, vertigo, dyspnoea, swelling of extremities.	During course of disease had pleurisy.	Saline cathartics, diuretics, sudorifics	Post-mortem showed chronic interstitial nephritis.	
2	35	F.	...	8	22	Yes	Yes	1012	2	13	10	15	Dyspnoea, pain in intercostal region, insomnia, nausea, swelling of face and extremities, and finally of abdomen.	Hypertrophy of heart.	Saline cathartics, diuretics, tapping abdomen, sudorifics	Post-mortem showed chronic interstitial nephritis.	
3	38	F.	...	12	18	Yes	Yes	1015	2	11	7	18	Pain in intercostal region, twitching of muscles, nausea, vertigo, general weakness, swelling of extremities.	None.	Saline cathartics, diuretics, anodynes, sudorifics.	Post mortem showed chronic parenchymatous nephritis.	
4	48	M.	...	6	25	Yes	Yes	1018	2	15	11	15	Dyspnoea, general weakness, loss of appetite, pain in intercostal region, vertigo, swelling of lower extremities.	Periodical attacks of asthma.	Saline cathartics, diuretics, sudorifics, stimulants.	No post-mortem allowed.	

TABLE II.—*Patients passing neither albumin nor casts, but a constantly diminished average quantity of urea, who finally die.*

No.	Age.	Sex.	Examination of urine.						Prominent symptoms	Complications.	Treatment.	Termination.
			Years under observation.	Number of examinations.	Aver. ounces in 24 hours.	Albumin.	Casts.	Aver. specific gravity.				
5	65	F.	...	10	26	No	No	1013 $1\frac{1}{2}$	14	4	24	Max. grams of urea in 24 hrs.
												Min. grams of urea in 24 hrs.
6	57	M.	...	13	34	No	No	1012 $1\frac{1}{2}$	15	12	21	Max. grams of urea in 24 hrs.
												Min. grams of urea in 24 hrs.
7	70	M.	...	8	20	No	No	1010 2	12	8	20	Max. grams of urea in 24 hrs.
												Min. grams of urea in 24 hrs.

TABLE III.—*Patients passing constantly small average quantities of urea, but for several months unaccompanied by albumin or casts, who then pass albumin and casts, and ultimately die.*

No.	Age.	Sex.	Examination of urine.						Prominent symptoms.	Complications.	Treatment.	Termination.
			Years under observation.	Number of examinations.	Aver. ounces in 24 hours.	Albumin.	Casts.	Aver. specific gravity.				
8	46	F.	...	9	32	Yes	Yes	1011 $1\frac{1}{2}$	13	5	19	Max. grams of urea in 24 hrs.
												Min. grams of urea in 24 hrs.
9	60	M.	...	16	40	Yes	Yes	1016 $1\frac{1}{4}$	15	7	30	Max. grams of urea in 24 hrs.
												Min. grams of urea in 24 hrs.
10	65	M.	...	10	72	Yes	Yes	1014 $\frac{3}{4}$	16	19	14	Max. grams of urea in 24 hrs.
												Min. grams of urea in 24 hrs.

TABLE IV.—*Patients who pass a diminished average quantity of urea accompanied occasionally by albumin and casts, who partially or wholly recover.*

No.	Age.	Sex.	Years under observation.	Number of examinations.	Aver. ounces in 24 hours.	Examination of urine.						Prominent symptoms.	Complications.	Treatment.	Termination.
						Alb.	Casts.	Aver. specific gravity.	Aver. per cent. of urea.	Aver. grams of urea in 24 hrs.	Min. grams of urea in 24 hrs.	Max. grams of urea in 24 hrs.			
11	29	M.	2	14	24	Yes	Yes	1017	2	14	7	24	No other discoverable lesion.	Nitro-glycerin, diuretics, sudorifics, saline cathartics.	Patient recovered in 4 months, but has tendency to relapse on exposure.
12	20	F.	4	20	34	Yes	Yes	1012	1 $\frac{1}{3}$	14	9	21	Chorea in right leg; no other evidence of disease.	Nitro glycerin, sodii bromidi, diuretics, sudorifics.	At one time was apparently well, but is now worse.
13	30	F.	5	10	38	Yes	Yes	1016	1	11	8	24	No other evidence of disease.	Diuretics, nitro-glycerin, sudorifics, saline cathartics.	Had child 2 years ago without accident, but is now not so well.
14	43	F.	5	12	25	Yes	Yes	1014	1 $\frac{3}{4}$	12	7	21	Had rectal ulcer, but same symptoms continued after it was healed.	Diuretics, saline cathartics, sudorifics.	Patient greatly improved after several relapses.
15	36	F.	4	10	30	Yes	Yes	1018	1 $\frac{1}{2}$	14	7	20	Careful examination showed no other disease.	Diuretics, sudorifics, saline cathartics.	Patient has had child since, and has wholly recovered.
16	37	F.	5	15	32	Yes	Yes	1020	1 $\frac{1}{4}$	12	6	21	Could find no other evidence of disease.	Nitro-glycerin, sudorifics, saline cathartics	Patient now apparently well, and has been so for more than a year.
17	56	M.	4	6	20	Yes	Yes	1018	3	18	14	28	No other organic lesions discoverable.	Saline cathartics, nitro-glycerin, sudorifics, digitalis.	Patient at last report was apparently well.
18	30	F.	4	12	28	Yes	Yes	1020	2	17	7	27	No complications discoverable.	Saline cathartics, nitro-glycerin, sudorifics.	Patient after several relapses is now apparently well.



19	32	F.	5	40	32	Yes	Yes	1021	2	18	6	33	Pain in intercostal nerves, dyspnoea, vertigo, nausea, weakness, swelling of extremities, numbness of extremities, painful micturition.	Had three attacks of pelvic cellulitis; had peritoneal asthma (hay fever). No other organic disease present.	Nitro-glycerin, saline cathartics, sudorifics, anodynes.	Patient is now apparently well.
20	34	F.	4	14	38	Yes	Yes	1021	13/4	19	10	30	Constant pain in intercostal region, exhaustion on exertion, oedema of the eyelids, headache, nausea, vomiting, swelling of feet.	No other organic disease present.	Nitro-glycerin, saline cathartics, sudorifics.	Patient has been apparently well for a year past.
21	41	M.	4	6	24	Yes	Yes	1019	1 1/2	11	5	19	General weakness, vertigo, nausea, slight oedema of extremities, intercostal neuralgia; symptoms have continued for a long time.	No complications discoverable.	Saline cathartics, nitro-glycerin.	Patient rapidly recovered, and has been well since.
22	21	F.	3	8	30	Yes	Yes	1020	1 1/4	12	7	16	Has lost flesh for six months; been treated for other diseases; has nausea, vomiting, vertigo, slight oedema of extremities, insomnia.	Has no other discoverable disease.	Saline cathartics, nitro-glycerin, sudorifics.	Patient after relapses is now apparently well.
23	54	M.	2	6	28	Yes	Yes	1018	2	47	13	30	Pain in side, dyspnoea on slight exertion, headache; had symptoms for more than a year when first seen.	No other organic lesion discoverable.	Nitro-glycerin, saline cathartics.	Patient recovered rapidly, and is now well.
24	40	F.	2	6	32	Yes	Yes	1015	2	19	14	25	Dyspnoea, intercostal neuralgia, vomiting; hands, face, and extremities oedematous; exhaustion; large quantity of albumin.	Otherwise healthy.	Nitro-glycerin, saline cathartics, sudorifics.	Had child 1 year afterward without accident, and is now apparently well.
25	25	F.	2	8	24	Yes	Yes	1017	2 1/2	18	10	26	Headache, nausea, exhaustion, oedema of extremities, intercostal neuralgia.	Had pelvic cellulitis 2 years ago; had puerperal convulsions last June; mitral murmur.	Nitro-glycerin, sudorifics, anodynes, saline cathartics.	Patient is now apparently well, except valvular lesion.
26	24	M.	2	6	16	Yes	Yes	1020	3	16	14	17	Vertigo, pain in side, nausea; been sick for several months previous; treated for various diseases.	Had no other discoverable lesions.	Nitro-glycerin, saline cathartics, sudorifics.	Patient is very much improved, but not well.
27	24	F.	2	8	34	Yes	No	1019	1	10	6	22	Extreme dyspnoea, vertigo, general weakness, extreme oedema of extremities; face also swollen; painful micturition.	Had no other evidence of disease.	Nitro-glycerin, sudorifics, saline cathartics, potassii bicarb.	Patient rapidly recovered, and is now well.
28	57	M.	2	6	38	Yes	No	1020	1 1/2	17	14	25	Great dyspnoea, extremities much swollen; had had such explosions for last five years previous to treatment.	Had chronic pleurisy on both sides with effusion.	Nitro-glycerin, sudorifics, saline cathartics, alcoholic stimulants.	Patient still not much improved.

TABLE V.—Patients who passed small average quantities of uræa, having the prominent symptoms in the other cases, who, under same treatment, recovered.

No.	Age.	Sex.	Examination of urine.							Prominent symptoms.	Complications.	Treatment.	Termination.			
			Years under observation.	Number of ex-aminations.	Aver. ounces in 24 hours.	Albumin.	Casts.	Aver. specific gravity.	Aver. per cent. of uræa.					Aver. grams of uræa in 24 hrs.	Min. grams of uræa in 24 hrs.	Max. grams of uræa in 24 hrs.
29	27	F.	5	20	38	No	No	1016	1½	17	4	31	Headache, nausea, exhaustion, pale, losing flesh, slight œdema of extremities, vertigo, dyspnoea.	No evidence of other organic lesions.	Nitro glycerin, saline cathartics, sudorifics.	Patient gradually recovered after relapses, and is now well.
30	26	F.	8	16	40	No	No	1015	1½	18	8	33	General weakness, no œdema, dyspnoea on slight exercise, intercostal pain, headache, "nervous;" weight normal.	No organic lesions discovered.	Nitro-glycerin, saline cathartics, anodynes.	Married, and had babe since without accident, and is now well.
31	45	F.	4	21	48	No	No	1020	1	15	14	38	Irritable heart, headache, dyspnoea: symptoms had existed for several years; appetite good.	No other evidence of disease.	Nitro glycerin, saline cathartics.	Grew gradually better; had child over a year ago without accident.
32	30	M.	4	10	36	No	No	1016	1½	16	12	26	Constant pain in head and limbs for several months; exhaustion, nausea occasionally, painful micturition, urine very acid.	No other disease discoverable.	Diuretics, saline cathartics.	Patient now apparently well
33	39	M.	4	12	40	No	No	1015	1¼	15	9	28	Painful micturition, exhaustion, pain constantly in left side, general weakness; symptoms had continued for several months.	Impotence for years previous.	Nitro-glycerin, saline cathartics.	Impotency no better; all other symptoms relieved.
34	70	M.	4	8	25	No	No	1018	1¾	16	7	27	Was confined to bed from extreme exhaustion when first saw him; dyspnoea, headache, nausea, œdema of extremities.	No other disease discoverable	Diuretics, saline cathartics, sudorifics.	Made rapid recovery, and is now well.
35	41	F.	4	20	26	No	No	1018	1½	12	5	28	Headache, insomnia, exhaustion, nausea at intervals, slight œdema of extremities, painful micturition.	Periodical "sick headaches."	Diuretics, saline cathartics, nitro-glycerin.	Is apparently well.
36	36	M.	4	14	25	No	No	1017	2	15	9	28	For two years had been constantly having pain in stomach and intercostal region; losing flesh, vertigo, exhaustion.	Chronic gastritis; no other disease discoverable.	Nitro-glycerin, saline cathartics, sudorifics	Grew rapidly better, and is now apparently well
37	30	F.	4	16	52	No	No	1015	¾	12	7	24	Intercostal pain, headache, exhaustion; other treatment for months has not relieved; vertigo, slight œdema of extremities.	No complications.	Diuretics, saline cathartics.	Got much better; got wet, and relaxed; now apparently well.
38	45	F.	4	10	21	No	No	1015	1½	11	5	23	Vertigo, exhaustion, headache, œdema of feet and limbs, "nervous;" symptoms continued for several months previous.	No complications discoverable.	Nitro-glycerin, saline cathartics.	Tests showed a much larger average quantity of uræa, and patient is better.

39	36	F.	4	21	34	No	No	1016	1 1/4	13	4	25	Palpitation, very "nervous," exhaustion, vertigo; hands tremble on slight exertion; swelling of feet and limbs.	Well nourished, and no complications. Other functions normal. No other lesions.	Nitro-glycerin, saline cathartics, sodii bromidi.	Patient improved rapidly, and is now well. Is now apparently well. Well for one of her age.
40	15	F.	3	8	50	No	No	1018	4/5	12	12	24	Vertigo, nausea, intercostal pain, exhaustion, dyspnea on slight exertion, headache, pale.	No other disease discoverable.	Nitro-glycerin, saline cathartics, anodynes, saline cathartics.	Improved from first, and is at this date well.
41	68	F.	3	12	30	No	No	1017	1 1/2	16	10	22	Headache, nausea, vomiting, vertigo, exhaustion; compelled to take bed often.	None discoverable	Nitro-glycerin, saline cathartics, anodynes, saline cathartics.	Is now apparently well.
42	40	M.	3	14	24	No	No	1018	2 2/3	17	17	23	Headache and backache almost constantly; intercostal pain, exhaustion, vertigo, occasional nausea; unable to work much of time.	No heart murmur, well nourished; no other evidence of disease.	Nitro-glycerin, saline cathartics, other remedies had failed.	Rapidly recovered from bad symptoms, and is now comfortable.
43	38	F.	3	18	26	No	No	1021	2	16	7	22	Nausea, headache, itching, vertigo, intercostal neuralgia almost constantly; had scarlet fever two years previous, and symptoms began then.	Unmarried; not pregnant; no murmur; well nourished; no other evidence of disease.	Nitro-glycerin, saline cathartics, sudorifics.	Recovered in 5 weeks; has had no relapse, and is now well.
44	75	M.	3	14	48	No	No	1020	1 1/4	18	11	23	Limbs swollen to body, extreme dyspnea, intercostal neuralgia, headache, exhaustion; appetite good; pulse irregular; heart slightly enlarged.	No other evidence of disease could be found.	Nitro-glycerin, saline cathartics, sudorifics, anodynes.	Is now apparently well.
45	25	F.	2	8	100	No	No	1008	1/2	10	5	27	Intercostal neuralgia, extreme edema of legs, pale, menstruation stopped, hands and feet cedematous, vertigo; complained for several months previous.	Careful examination revealed no other disease.	Saline cathartics, sudorifics, nitro-glycerin.	Is now apparently well.
46	61	M.	2	10	41	No	No	1017	1 1/2	18	13	28	Dyspnea, headache, intercostal pain, exhaustion; symptoms had continued for many months; painful micturition at times.	Cerebral hemorrhage after two years from first examination.	Saline cathartics, sudorifics, nitro-glycerin.	Is now apparently well.
47	6	M.	4	5	16	No	No	1020	2	9	6	18	Painful micturition for some months, extreme edema of limbs, headache, pain in side.	No discoverable disease of heart, lungs, or other organs.	Epsom salts, diuretics, potassii bicarb., fl. ext. buchu.	Rapidly recovered, and has remained well.
48	59	M.	4	20	32	No	No	1117	1 1/3	15	12	29	Has continual lumbar pain, vertigo, insomnia, exhaustion; atheromatous degeneration of arteries; edema of limbs.	No discoverable disease of heart, lungs, or other organs.	Nitro-glycerin, saline cathartics, sudorifics.	Head symptoms not much improved, but otherwise more comfortable.
49	24	F.	2	8	34	No	No	1019	1	16	8	24	Extreme dyspnea, vertigo, exhaustion, extreme edema of limbs; hands and face swollen; pain on passing water; symptoms had continued for months.	Lungs and heart healthy; no other discoverable disease.	Nitro-glycerin, saline cathartics, sudorifics.	Improved very rapidly, and is now well.
50	60	M.	4	8	32	No	No	1020	1 1/2	14	8	28	Extreme dyspnea; was confined to chair; feet and legs much swollen, nausea, vertigo; twitchings of muscles; pulse irregular.		Nitro-glycerin, digitalis, saline cathartics.	Much better in 6 weeks, and has had but one or two attacks since.

THE EXPEDIENCY OF OPERATING AT ONE SITTING UPON  
THE BLADDER AND KIDNEY, WITH REPORT OF A CASE  
IN WHICH THE DOUBLE OPERATION WAS DONE.

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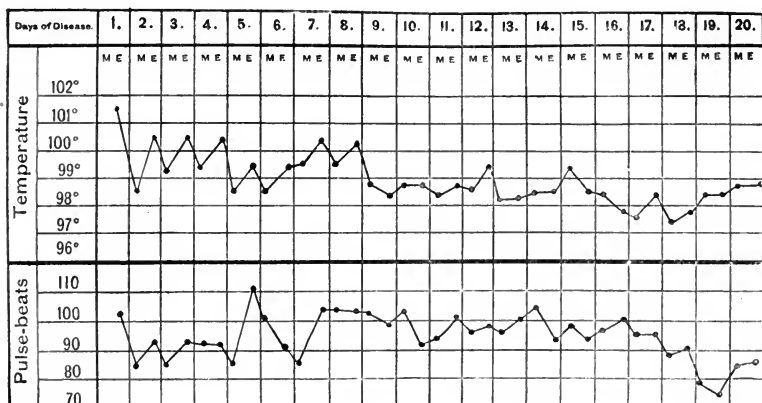
THE necessity for several operations upon the urinary organs of one person does not often arise, and the following case recently in my care has been so suggestive as to warrant record.

J. B., male, white, aged fifty-six years, usual weight 150 pounds, now much lighter, was seen by me in June, 1889, and gave the following history: In 1884 he had an attack of what was called kidney colic by the physician in attendance; in March, 1887, he began to pass water frequently, then pain over the pubes was noticed, and discomfort in the perineum, especially after driving or other active exercise; in April, 1888, the calls to pass water were so frequent and so imperative that a rubber urinal was obtained and has since then been continually worn by day. A white deposit has been noticed in the urine during the past few months. Discomfort in the region of the left short ribs was noticed in March and still continues. The patient has often found his urine suddenly to cease flowing before the bladder had emptied itself, and on such occasions with a soft-rubber catheter he has obtained relief. Washing out the bladder with warm water has been tried but without advantage. Dryness of the mouth, especially for the past month or two, has been very annoying, and there is a clear history of exacerbations and remissions in intensity of symptoms during the past six months.

J. B. consulted me first at my office: his complexion was pasty, his pulse 100 to the minute, he sat down, and rose from a chair carefully so as to avoid jarring. I at once sounded, striking a stone not of large size nor of hard consistence. A lump painful on handling could be made out in the region of the left kidney by examination from in front; pain was elicited by pressure along the course of the left ureter. The patient was sent home, kept quiet, the bowels as well as the diet were regulated, and the urine examined. This latter was in fair amount, was alkaline and contained much pus, but one specimen, obtained the second day after coming under observation, was tolerably clear and distinctly acid. No casts were found, but they may have been masked by pus. Stone in the bladder and abscess in the left kidney were evident; I thought it probable that the right kidney was fairly healthy else the urine obtained as stated above would not have been so acid.

J. B. was sent into a private room at the University Hospital that he should be continuously under observation. During four days the temperature varied between 99° and 102° F., and other symptoms were not more favorable; so on the fifth day I opened the kidney through the usual incision in the loin, evacuating an ounce or so of pus, and then removed a stone by lateral lithotomy from the bladder. The kidney parenchyma where incised was about one-quarter of an inch thick; I attempted ineffectually to pass a soft instrument into the bladder from the abscess cavity along the ureter.

A good deal of shock followed the double operation; the same evening, however, the pulse was 112, and the temperature 99.5° Fahr. All went well for a week, when diarrhœa began, with irritable stomach and diminished secretion of urine. Dr. I. E. Atkinson, who saw the patient with me, suggested uncooked egg albumen as nourishment, so I ordered treatment and food as follows: white of egg  $\bar{z}$ ss with blackberry brandy  $\bar{z}$ ss every hour; Tinct. digitalis  $\mathfrak{m}$  v hypodermatically every four hours; an enema of starch-water q. s., with Tinct. opii deodor. gtt. xxx after each passage. Nothing else save crushed ice by the mouth was given. Improvement was shortly evident, the enemata were discontinued, then the digitalis; the egg and brandy was continued for ten days, when a more liberal diet was gradually permitted. A drainage tube was worn in the kidney wound for fifteen days; rapid healing followed its removal. The perineal wound was quite healed in less than three weeks. The patient went to the country four weeks after the double operation.



He is now (November, 1889) well and able to attend to the usual matters claiming his attention. Both wounds are closed by normal painless scars; the urine, which is passed in a full stream, is acid, sp. gr. 1022, and contains no pus.

The case related in the foregoing history differs from the usual run, and the question is properly raised, whether it is best to operate, as was done here, upon both diseased organs at one time, or whether they should be attacked consecutively? Furthermore, it will not be without profit to consider what method should be resorted to for the removal of the stone from the bladder under similar circumstances, for it goes without saying that the kidney required incision.

There is a history clearly pointing to the gradual undermining of the patient's constitution, owing to the presence of a urinary calculus, with the usual local suffering, progressively increasing in intensity. Latterly there were periods of fever at irregular intervals, with slightly chilly sensations occasionally, not amounting to rigors but yet pronounced enough to attract the patient's attention. Now, if there is one thing

more clear than another in the surgery of the urinary organs, it is that such a set of symptoms coincident with the presence of a stone in the bladder, is to be translated as indicating the subjection of new areas of kidney territory to inflammation, transmitted probably along the ureter from the bladder, each pyrexial period meaning advance, the inflammation having a tendency to pass into suppuration. Thus I was prepared to find pus, and believe that there was suppuration in the kidney pelvis, possibly, but certainly in the kidney substance, a pyramid perhaps, which gave rise to the increase in unfavorable symptoms just before I was consulted. I was therefore in presence of a case of suppurative pyelonephritis, a form of surgical kidney in which general septicæmia is liable to be induced by any operation upon the urinary tract.

The condition of the bladder was of course evident; the stone was probably phosphatic, to judge by sounding, and rectal touch showed the prostate to be not enlarged. I carefully examined the right kidney, making out that it did not seem to be increased in size and that handling gave no pain. The course of the right ureter was not tender. I could not with certainty obtain urine from the right kidney unmixed with that from the left for examination, but as one specimen of urine, already referred to, differed from specimens obtained at all other times, I inclined to the belief that the inflamed left ureter had been temporarily stopped, and that the acid and somewhat clear urine came from a comparatively healthy right kidney. As one healthy kidney is enough for all practical purposes, my patient's outlook was now rather favorable and an operation seemed proper.

Opening the kidney would leave an inflamed bladder containing a stone with the usual suffering, while regurgitation of pus and urine through the dilated ureter and lumbar wound would be likely. On the other hand, to remove the stone from the bladder and leave a suppurating kidney would run serious risk of general sepsis. In this dilemma there came to me the idea of doing both operations at one sitting, in this way relieving both organs and giving them rest.

The proper method for the removal of the stone from the bladder now demanded consideration.

That the age of the patient was fifty-six, the stone phosphatic, the urethra capacious, the bladder able to hold several ounces of fluid and the prostate normal, were all conditions favorable to litholapaxy; in favor of perineal lithotomy was the rapidity of the operation, the complete removal of stone and absolute rest for the bladder, with excellent drainage. To this must be added my belief that a bladder at rest and draining freely would better agree with a suppurating kidney than would an inflamed bladder frequently contracting to expel its contents; in other words, free cutting followed by free drainage and complete rest was

the treatment to be followed out. The result of this reasoning has been already stated.

So favorable has been the outcome of the double operation that I am inclined to think that nephrotomy may be resorted to as a means of preventing the occurrence of diffuse suppuration. In the case related the formation of multiple renal abscesses might well have been expected if the bladder only had been operated on and the kidney neglected, yet after free nephrotomy no such untoward event took place. Elsewhere in the body diffuse suppuration is treated by free cutting to relieve tension and afford an exit for exudation; why not apply the same rule to the kidney, laying open the capsule and gland tissue so as to prevent the access of inflammatory or septic trouble?

I recall to mind a case of urethral stricture of twenty years' duration. I explored the urethra and bladder for diagnosis; the patient, a male, had a severe rigor and died in three days. Post-mortem I found several acute abscesses in one kidney. I wonder if a free nephrotomy at the time of the bladder exploration would not have been of use to my patient.

I recall another case of malignant growth in a bladder; I did a suprapubic cystotomy, finding the orifice of the left ureter almost occluded. The growth was scraped away and my patient died in five days. Post-mortem I found many acute abscesses in the left kidney and a phlebitis which had commenced in the same organ. Again I wonder if free nephrotomy at the time of the cystotomy would not have prevented the diffuse kidney inflammation and pyæmia. With my present experience I cannot avoid thinking that nephrotomy would have been of use in both of the above cases, which were undoubtedly instances of surgical kidney, probably unilateral, diffuse kidney suppuration and pyæmia being lighted up by operations on the distal urinary tract.

It seems to me, therefore, that in long-standing disease of the urinary organs, such as is liable to induce that clinical condition entitled surgical kidney, where it becomes necessary to operate upon the bladder or urethra, that it becomes the duty of the surgeon to investigate the condition of the kidneys, and if there be found present such a state of affairs as is liable to induce diffuse suppuration, or multiple renal abscesses, then at the time of the urethral or bladder operation it may be proper also to perform nephrotomy.

NOTES AND REMARKS ON THE BIRTH OF A DOUBLE FŒTUS,  
SOMEWHAT RESEMBLING THE SIAMESE TWINS.<sup>1</sup>

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AT half-past seven o'clock on the evening of September 13, 1889, I was hastily called to attend Mrs. M., a native of Nicaragua, Central America, twenty-three years of age, and not quite one of marriage, who with her husband was visiting this city on their way to the Paris Exposition. The membranes had ruptured about half an hour before. When I arrived at the house I found the lady lying on a sofa in her bedroom, the floor of which was wet in several places. Questioned, she said that for two days she had been very busy, working continuously for hours at the sewing machine, and on that evening about seven o'clock, after finishing her work, she felt water dribbling along the sides of her legs. Satisfied that it was not urine, and not knowing what that flooding meant, she called for the lady of the boarding-house where she was stopping, and informed her of her condition. Both then agreed to send for me. After being told that she was already past her sixth month of pregnancy, I explained to them it would probably signify that she was going to have a miscarriage; told her to lie in bed and keep very quiet, to see if I could avert the threatened accident, although I had very little hope of succeeding. At ten o'clock the labor pains began, and I immediately ordered the necessary arrangements as to the bed, room, nurse, etc.

The patient would not consent to my making a vaginal examination. At half-past twelve the pains became severe and followed one another at short intervals. At one o'clock in the morning I was finally allowed to make a vaginal examination under cover of the sheet, and found to my great surprise three feet protruding about an inch through the vulvar orifice. I say to my great surprise, because I had not expected labor to be so far advanced. By the relative position of the three feet, two being turned upward and one downward, I knew I had a case of twins (though it might have been a single body with three legs, as the *derodymus* monster of Dr. Boerstler<sup>2</sup>) but the idea of their being united never crossed my mind.

The true propulsive pains then commenced, and during the intervals I made numerous efforts to push in and out of the way the foot belonging to the second child, while at the same time I took hold of the other two with my left hand. For about ten minutes I kept up this manœuvre without success. I sent then to the New York Hospital, near by, for one of the house staff for consultation. Dr. Frank P. Wilson came. Before his arrival, during a long expulsive pain, the other foot of the second child came out, and as I am gifted with very small hands, I easily introduced the right one into the vagina and ascertained the cause of the impediment. After that I decided to let the great powers of Nature operate, helping her only myself as a servant and not as a master. I saw

<sup>1</sup> Read before the New York County Medical Association, with exhibition of the specimen, October 21, 1889.

<sup>2</sup> AMERICAN JOURNAL OF THE MEDICAL SCIENCES, vol. xxx., 1855.



immediately that I had a good inspiration, for while Dr. Wilson was holding the four legs and I rubbing the perineum with a little olive oil, the two bodies began to come out with a slight screw movement, as if to adapt themselves better for the delivery of the two heads. I exerted a little traction on the lower extremities of both fœtuses, bringing their bodies over the abdomen of the mother after they had placed themselves with their backs in the oblique diameter by spontaneous evolution. Another



propulsive pain, a little more traction, and out came the lower head, immediately followed by the upper one. It was then half-past one in the morning. The rest of the delivery had nothing worthy of record, everything being normal. The children were born dead.

The two bodies are nearly of the same size. They measured when born, one fourteen inches in length, the other thirteen and a half, and weighed four and three-quarters pounds. The circumference of one of the heads was ten and a quarter inches, and that of the other eleven and three-quarters. Around the two pelvis they measured thirteen inches. They are united throughout the whole length of the sternum and upper part of the abdomen, the umbilicus, which is common to both, included ;

the liver, very large and single, protruded between the two bodies. They face each other in contact, are both males and well developed.<sup>1</sup>

The placenta, large and single, was expelled without difficulty twenty-five minutes after the birth, the uterus contracting firmly without any hemorrhage. From the centre of the placenta sprung a single umbilical cord, of normal length and thickness for a six and a half months' pregnancy.

On the afternoon of the 14th the patient complained of a little pain in the abdomen, of a neuralgic character. Fully aware of the good results obtained in this country with quinine in the treatment of the after-pains, I prescribed four grains in solution with a few minims of hydrobromic acid twice a day. Temperature 99°.

Next day the pain had disappeared. Pulse and temperature normal.

On the 16th there was milk in the breasts, which were somewhat painful but soft. No fever. Liniment of one drachm of the extract of belladonna with an ounce of glycerine. Directed the nurse to rub this gently twice a day, covering the breasts with a layer of lint kept in position by a bandage. Ordered a dry diet.

The following day, the bowels not having moved since the 13th, I ordered a laxative of castor oil, which caused them to act twice. Pulse and temperature normal.

On the 20th the milk disappeared. The 23d the patient was allowed to sit in a reclining-chair for a few hours. Three days afterward she left her bed altogether, and made a perfect recovery, not having had the least fever in the whole period of the puerperal state, due, no doubt, to the strict observance of antiseptic rules and hygienic precautions.

From the earliest times in history congenital malformations of the newborn have attracted the attention of philosophical writers, and excited the wonder and superstition of the illiterate. In modern times the French and German languages especially abound in treatises on human monstrosities. In Italian there are three such works, one of them the recent exhaustive *Storia della Teratologia*, by Taruffi (Bologna, 1881-9). The English language contains no systematic original treatise on this subject, nor do I know of any in Spanish, except the translation of the universally known work of Dr. Geoffroy St. Hilaire.

Recently the observations of St. Hilaire have been corrected in certain particulars by Dareste (*Sur la production artificielle de monstruosités*, Paris, 1877), in accordance with the progress of embryology. The interesting and valuable researches of Wolff, von Baer, Reichert, and Allen Thomson have also been supplemented by the investigations of Panum, Förster,<sup>2</sup> and Lereboullet,<sup>3</sup> whose labors contribute much to the solution of many embryological questions hitherto based on hypothetical grounds.

<sup>1</sup> When they were photographed they had been in alcohol three weeks, and of course had shrivelled considerably. The flattening around the axillæ is due to the pressure of the cord by which they are suspended in the alcohol jar.

<sup>2</sup> Die Missbildungen des Menschen. Jena, 1861.

<sup>3</sup> Recherches sur les monstruosités du brochet, observées dans l'œuf et sur leur mode de production. Paris, 1863.

Dr. George J. Fisher, of New York, who has devoted more than twenty-five years of his life to the collection of works on, and the study of this interesting topic; proposes the name "Diploteratology" as a distinctive title for the special branch of teratology comprising all the compound monsters, including double and triple formations, the so-called "parasitic monsters," and *fœtus in fœtu*. The special genus or family to which my case belongs, he calls "*omphalopagus symmetros*," or symmetrical navel-joined monsters. The varieties of it range from junction by a small band (as in the Siamese twins) to a junction which extends from the top of the sternum to the lower part of the abdomen.

The distinction made by Aristotle between single and double monsters is very curious. He says that if the monstrosity has only one heart, it ought to be considered single, and if it has two then it is a double monster.<sup>1</sup>

Prof. W. Vrolick, of Amsterdam, claimed that a scientific classification of monstrosities is impracticable from being too cumbrous. He grouped all double monsters in three simple classes, viz: (a) anterior junction, (b) posterior junction, and (c) lateral junction. But for obstetric purposes, that is, for practical value, I prefer Prof. Playfair's division into four varieties, viz: (A) two nearly separate bodies united in front, to a varying extent, by the thorax or abdomen; (B) two nearly separate bodies united back to back by the sacrum and lower part of the spinal column; (C) dicephalous monsters, the bodies being single below, but the heads separate; (D) the bodies separate below, but the heads partially united. As the author himself acknowledges, this classification by no means includes all the varieties of double monsters, but it comprises all those that are likely to give rise to much difficulty in delivery.

Several theories have been advanced to explain the embryonic formation of a double monster, but the one most generally accepted is that it is the result of fecundation of an ovum with a single vitellus and vitelline membrane, upon which two primitive traces are developed. E. Bugnion,<sup>2</sup> speaking on this subject, says:

"The question, whether double monstrosities are developed from one or two separate germs, is only a play of words; its solution depends on the meaning given to the word *germ*. Certainly, the double monster is formed from a single germ, if we understand by the term germ the germinal vesicle, or the vitellus not fecundated; it is formed, on the contrary, from two distinct germs, if we call germ the *noyau* (cytoblast) of segmentation, the segmented vitellus, or the young embryo."

The theory before given, notwithstanding, furnishes a satisfactory explanation of the three laws governing all cases of double monsters, viz.:

<sup>1</sup> De generat. animalium, book iv. chap. 4.

<sup>2</sup> Revue Médicale de la Suisse Romande, Genève, 1889, vol. ix. p. 347.

1st. The law of unity of sex, proved by more than five hundred cases in the human species, and innumerable ones in animals. 2d. The law of homologous union; that is, the union of the two fœtuses being of exactly the same parts in each. In cases of a parasitic fœtus, or a monster within another (*fœtus in fœtu*), it has been found that the union was homologous in the early embryonic periods. 3d. The law of right and left symmetry, which means a transposition of the viscera of one of the fœtuses, in order to be immediately opposite to the corresponding viscera of the other: the heart of one child will be found on the right side, and their apices converging toward the line of fusion of the two bodies; the same is true of the two livers, the spleens, and the stomachs. This last law, however, is not so invariable as the other two.

Regarding the theory of maternal mental impressions, it is sophistical to attempt to explain with it those anomalies of organization, because corresponding malformations, in every respect identical in character, occur in animals of the lower order—such as birds, reptiles, and fishes—and, going still further, we find analogous malformations in the vegetable kingdom, where single or double monsters also abound, due, most probably, to defective or excessive formative power.

Three separations of human double monsters by surgical means are on record: One is mentioned by Ambrose Paré (*Surgery*, Book xxv., Chaps. 13 and 14, 1579); another is reported by König, in 1689, and the other by Boehm,<sup>1</sup> who performed the operation on his own twin daughters at the time of their birth in 1861; one of them died after three days, and the other was living at the time of the report, five years afterward. Yet in these cases the connecting band consisted only of skin and subcutaneous tissue. In the celebrated case of the Siamese twins, whose trustworthy birth-history is unknown, the autopsy, performed by Dr. Harrison Allen, of Philadelphia, demonstrated that the two livers were located in close proximity to the bond of union, and joined to each other by small bloodvessels, which were lined with a thin layer of genuine liver tissue. There was also a process of peritoneum extending through the pedicle from one abdominal cavity to the other.<sup>2</sup>

Little is to be found in text-books on obstetrics about the mechanism and management of labor in cases of double monsters. Few indeed will be the number of accoucheurs who have had twice in their life an experience of this kind—for they occur, according to Braun, quoted by Zweifel, once in 90,000 labors—and the writers of those cases reported in our periodical literature pay more attention to the anatomical description of the fœtuses than to the mechanism of their delivery. I myself candidly confess that I did not remember the mode in which former cases of this

<sup>1</sup> Virchow's Archiv., 1866.

<sup>2</sup> Trans. Coll. of Phys. of Philadelphia, 3d series, vol. i., 1875.

nature had been managed, and trusted, when I discovered what I had before me, to the inspiration of the moment.

As a fitting remark on this particular point, I consider worth quoting what Fanzago,<sup>1</sup> who had a case similar to mine, says:

"It was a happy circumstance for the mother that she was not under the charge of a practitioner with his head full of the doctrines of the surgeon on the subject; otherwise, he, probably, would have performed some severe and dangerous operation, mutilating the children with the view of aiding delivery."

Of the nineteen cases of delivery of double monsters united in front to a varying extent by the thorax or abdomen, collected by Prof. W. S. Playfair, of London, in the appendix to his valuable memoir on the mechanism and management of such cases,<sup>2</sup> fourteen were delivered without using any instrument, one died undelivered, in another case the body of the anterior fœtus was amputated, and in the other three the forceps were employed. With the very limited resources at my disposition I have been able to add only five cases (mine included) to those nineteen, all of them except one (Dr. Marcy's case) delivered with but a slight assistance to Nature's efforts.

Veit, in his excellent monograph<sup>3</sup> on the management of delivery in cases of double monstrosity, says he found in 129 instances of monstrosities *per excessum, coalitionem, et implantationem*, only eighteen required instrumental aid. Hoht has made a similar statement.<sup>4</sup> In no other difficult labor more forcibly than in this variety, therefore, the old maxim that "meddlesome midwifery is bad" holds to be so good.

The great difficulty in all cases of division A is in the delivery of the two heads. When the four feet present spontaneously, the bodies pass through the pelvis parallel to each other with comparative ease; but when only three feet appear, as happened in my case, the natural inference is, of course, that the extra foot ought to be pushed out of the way to avoid head-locking. Had I known at that time that the two bodies were united into one, I would have searched for and brought out the other foot. When one of the heads presents, the more common way of delivery is for it to pass out, expelled by Nature's efforts as far as below the shoulders, if the union of the two bodies is lower than that point, or as far as the neck if the fusion is at the upper part of the sternum, the head of the second child following afterward the same way, and the rest of the body born without difficulty as in footling presentations. Exceptionally, both heads appear—one of them fitted into the cavity formed by the neck of the opposite child. Bakrow relates a case of this type

<sup>1</sup> Storia del mostro di due corpe. Padua, 1802.

<sup>2</sup> London Obstet. Soc. Trans., vol. viii.

<sup>3</sup> Die Geburten missgestalter, kranker und todter Kinder. Halle, 1850.

<sup>4</sup> See article of Dr. Parvin in vol. i. of Hirst's System of Obstetrics. Philadelphia, 1889.

delivered by the forceps,<sup>1</sup> and two similar instances are recorded in the London *Obstetrical Transactions*, volumes third and sixth.

In the case of feet presentation recorded by Huron,<sup>2</sup> the two bodies were born as far as the thorax, and finding it impossible to deliver the heads, amputation of all that part of the anterior fœtus was performed. Speaking about this example Playfair says:

"The body was removed *en masse* by a circular incision as far as it had been expelled, which allowed the remaining portion, consisting of the head and shoulders, to reënter the uterus; after this the posterior child was easily extracted, and the mutilated fœtus followed without difficulty."

I cannot see why the same thing could not have happened without recourse to the knife. There was no embarrassment in the birth of all that part of the two bodies already out of the pelvic cavity, and the difficulty was in the delivery of the heads; therefore, if they were of sufficient size to pass the brim after the mutilation, they could also have crossed it before by appropriate manipulation. In my trial the same thing occurred after the second foot of the second child came out, for then the two bodies passed through the pelvis parallel to each other, driven by the natural powers, as far as the thorax. I noticed the screw-movement they performed in their egress, and this inspired me to turn the bodies over the abdomen of the mother.

These two diagrams<sup>3</sup> represent what I believe happened in my case. After the birth of the bodies as far as the thorax, the two heads (A, B, Fig. 1) squeezed together, with a combined transverse diameter of nearly

FIG. 1.

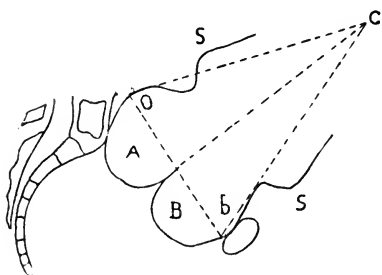
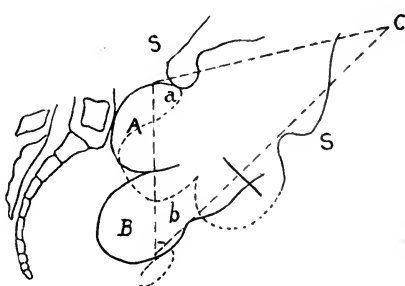


FIG. 2.



seven inches ( $3\frac{1}{4}$  and  $3\frac{1}{2}$ ), could not, of course, pass the brim. In Fig. 2 it is seen that the head (B) of the posterior child was somewhat displaced by (A) that of the anterior body, and became well advanced in the pelvis, the angle *a* gradually becoming more and more obtuse as the other

<sup>1</sup> De Monstrum Animalium Duplicitate.

<sup>2</sup> Archives Générales de Médecine, 1847.

<sup>3</sup> Taken from the Edinburgh Medical Journal, January, 1888, and modified by the author to adapt them to this case.

head (A) advanced, while the angle *b* became more acute, and finally (B) emerged from the vulvar orifice immediately followed by the head of the anterior child.

In class B of the division of Playfair—that is, when the children are united back to back by the sacrum—the labor is easier than in class A, because the two bodies are so joined that it is not necessary they should be born parallel to each other when the head presents. In podalic presentation the mechanism of delivery is the same as in class A. To this type belongs the famous Hungarian sisters, Judith and Hélène, who lived to the age of twenty-two years (1701–1723). Hélène preceded, with presentation of the head, and was delivered as far as the umbilicus; after three hours the breech first and the legs afterward descended, and then Judith was born, her feet coming out foremost. To the same kind of *pygopagus* appertain also the celebrated sisters, Millie and Christina, known as the “two-headed nightingale,” two dark mulattoes born in North Carolina in 1851, and still living, and the more recent case of the Bohemian twins, Rosalie and Josepha.

Double monsters of class C, in which there is a single body with two heads, are delivered very much like those of class A. “If the head presents,” says Playfair, “and the nature of the monstrosity can be recognized, turning should be resorted to, and the feet of both children brought down into the pelvis.” When by appropriate manipulation the heads cannot be made to pass the pelvic cavity, decapitation of one of them may be performed, since from their anatomical peculiarities it is extremely rare that such a monster could live. Two indisputable instances only, out of a large number of this kind of births, are recorded: Rita-Christina, who was born in Sardinia, March 3, 1829, and died in Paris November 23 of the same year, had two heads, two necks, and four arms, but a single body from the waist down; the other case is mentioned by Buchanan in his *History of Scotland* (1582), in which he says the monster was born in that country in the fifteenth century, received a liberal education at the expense of King James III., and lived to the age of twenty-eight years.

The most uncommon of all are the double monsters of class D, in which the heads are more or less fused together, and the rest of the two bodies entirely separate. Playfair says he could find the description of their delivery in only two instances: one gave rise to great difficulty, and in the other the labor was easy. Craniotomy or perforation should be performed when it is impossible to deliver the voluminous compound-headed monstrosity (*craniopagus*). Veit refers to a case in which the two children (*girls*) were united at the foreheads, and lived until they were ten years old. When the vertex of one head is merged with that of the other, the double monster is called a *melopagus*, and the mechanism of delivery offers no difficulty if the heads are of normal size.

My case is a true *thoracopagus tetrabrachius*, or, according to the classification proposed by Fisher, an *omphalopagus thoraco-symmetros*, and resembles very much the case of Dr. Henry O. Marcy, of Boston.<sup>1</sup>

In conformity with the authorities consulted, I find that the four practical deductions in the management of all cases of double monsters formed by the union of two bodies at the thorax or abdomen are the following:

1. The less interference with Nature's efforts the better.
2. If the heads present, and the monstrosity can be diagnosticated in time, turning should be resorted to, and the feet of both children brought down into the pelvis.
3. In podalic presentation the bodies can generally be extracted without much difficulty by direct traction, until the shoulders and four arms are reached. In doing this the backs of the fetuses, if not already placed in the oblique diameter by spontaneous evolution, should be made to assume that position, and the bodies then turned over the abdomen of the mother, so as to cause the posterior head to pass first into the cavity of the pelvis.
4. In vertex presentation, if the diagnosis cannot be made out, the body corresponding to the first-born head may be expelled by the natural powers, or the second head may be born with its occiput fitting into the cavity formed by the neck of the first child. If neither of these two manners of delivery takes place, and turning cannot be performed, craniotomy or decapitation will be required.

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## CLINICAL ILLUSTRATIONS OF REFLEX OCULAR NEUROSES.

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### I. STAMMERING DUE TO HYPEROPIA.

H. C., a lad of eleven years of age, was sent to me on May 4th, by Dr. Jarrett, of Camden, N. J. He had alternate convergent strabismus, and for about five years he had suffered from persistent headache. He was very thin and nervous, but no definite disease or hereditary taint was to be found. During the examination I was struck by his inability to speak without very painful and continuous stammering. Nearly every word was attended with grimaces, and pronounced only after repeated efforts. I thought no more of this until three days later, when the mother surprised me by saying that since she had been putting the "drops" in his eyes he had stuttered but very little. A similar remark in reference to headache is probably a daily experience of oculists—a fact that might be more often utilized by the general practitioner to

<sup>1</sup> Boston Medical and Surgical Journal, July 13, 1871.



differentiate headache due to eye-strain from that due to other causes. A mydriatic might often quickly settle the question.

I prescribed spectacles correcting his hyperopia of 1.50 D., and three weeks afterward I saw the boy again. The strabismus had disappeared, though returning the instant his glasses were removed. His headaches had vanished, and of his stammering there was hardly a trace. At this date (August 31st) there has been no resumption of the headaches, and he is much fleshier and more healthy. His mother tells me that unless very tired or very excited he seldom stammers. He was very willing to talk at this visit; and during a half-hour's conversation there were but few slight haltings or breaks, though he was, of course, under some excitement, especially before Professor Da Costa, who also examined him. His mother says, unsolicited, that his "temper" is much improved. I learn from her that the stammering had existed for four years.

## II. PECULIAR PARALYSIS, ANÆSTHESIA, ETC., FROM EYE-STRAIN.

Miss M. W., aged fourteen, was sent to me April 20th, by Dr. Jarrett. Her symptoms were so numerous and strange that I, at first, thought of hysteria, though much inquiry and subsequent events showed me this would have been a very bad diagnosis. The principal complaint seemed to be of "blind spells," occurring several times a week and lasting from one-half to one hour. During the paroxysm there was frequently violent emesis, particularly if she tried to open her eyes or look at anything. Headache preceded the paroxysms, gradually becoming more severe until ending in the climax, after which there was a brief period of one day or two of comparative comfort before the headache returned and the vicious cycle was repeated. This had been going on for five years, the paroxysms of late growing more frequent and lasting longer. With the on-coming headache the lids drooped and a "black spot" appeared before the eyes. This was soon followed by a strange numbness and deadness together with a loss of power and control of the feet, arms, hands, and face; but the loss was greatest in the tongue and mouth. At the height of the "blind spell" the insensibility and paralysis were also at a climax in one or more of the parts mentioned, and there was loss of the power of speech, or at least of articulate speech. Loss of appetite was noticed with the increasing headache, and, as I have said, nausea and vomiting might take place during the crisis. Memory had long become so poor that attendance at school was useless. The ocular examination showed a high degree of hyperopia with slight astigmatism, but without any insufficiency. I do not doubt that had the case been that of a boy, the external recti would have weakened and strabismus would have given relief.

I prescribed correcting spectacles and ordered a discontinuance of all medical treatment, and saw her again two months later. She had had but one blind spell since getting her glasses, and this was at the period of her first menstruation, a profuse and extended one that came on the second month after wearing the glasses and after the paroxysms had ceased. There had been but few and slight headaches, there was a good and regular appetite, she looked healthy, and was happy at the relief from her many previous ills. I can hardly doubt that the eye-strain had also served to retard the beginning of the menstrual life.

On September 2d, the state of affairs remained the same. There had been no further troubles of the kind described, except once a slight temporary paralysis of one arm—without a blind spell, however.

III. CHOREA OF TWO YEARS' DURATION DUE TO HYPEROPIC  
ASTIGMATISM.

B. R., a girl of eleven, by the advice of Dr. O. P. Rex, consulted me on April 5th. "Batting the eyes" and twitching of the facial muscles began two years before, and during the next year the arms and hands began to clutch and jerk convulsively. The lower extremities had not been implicated. Of late the motions of the hands had been somewhat less troublesome, but coincidently with this she commenced the habit of uttering peculiar "crowing" noises and talking a great deal in a strange and incoherent manner. From the description I thought this phenomenon might have been appropriately called chorea of the voice. In the past six months headaches have been growing constantly more severe, and my notes tell of pains in the back and legs, fits of vomiting, loss of appetite, and tinnitus aurium. There was on the part of the mother great complaint of irritability and "quarrelsomeness." She had been treated at two of our best hospitals for the "St. Vitus dance," but without any improvement. I found an hyperopia of two dioptries in each eye and an astigmatism of one, and at once prescribed spectacles, ordering at the same time a complete discontinuance of medical treatment.

On August 27th, she and her friends reported that all the symptoms I have described vanished very shortly after she began wearing the glasses. There had not been, for several months, any sign of chorea; there had been no gastric trouble or vomiting, no headache, no involuntary crowing or talking noises, etc. The disposition was normal, she had a good appetite, and excellent health. The case had slipped my mind. She had come to me to see about her broken glasses. She had been without her spectacles for two days. Within twenty hours after the accident her eyelids began "blinking and twitching," and it was plainly evident that the blepharospasm was fast extending to the facial muscles. I, of course, hurried her to the optician, with the conviction strong in my mind that the typical chorea would have returned within a short time.

In many respects this case recalls another that I reported previously,<sup>1</sup> in which the lower extremity was involved, and the malady of longer standing. The spasmodic activity of the right hand and foot was continuous and severe, and, uninfluenced by the highest scientific treatment, had persisted for two or three years. It disappeared wholly and almost immediately with the wearing of spectacles correcting her ametropia, the arsenic treatment having, by order, been discontinued the day she got her glasses. The cure is complete up till now.

Since that report I have had several cases of more or less severe tic of the face, implicating one or several muscles of the cheek and mouth, quickly disappearing with relief of eye-strain. I have also had two cases of great restlessness and generalized nervous activity, seemingly not very different from chorea in essential character, that were relieved in the same way. It does not seem illogical to suppose a generalized or

<sup>1</sup> Medical and Surgical Reporter, February 9, 1889.

diffused outlet for abnormal nervous discharge instead of specialized or particular routes.

I may also refer to a case of what I have ventured to call "chorea of the heart," reported in the same communication.<sup>1</sup> The intense and long-continued palpitation came on during enormous eye-strain, and persisted despite all medical treatment until the ametropia was corrected, when the heart's action became normal at once, and the seriously endangered life was saved.

#### IV. FUNCTIONAL GASTRIC DISTURBANCES OF OCULAR ORIGIN.

In the paper above referred to, I have given the details of a case of flatulent dyspepsia of a distressing kind, of twenty years' standing, cured by spectacles. Owing to the long duration of the fearful ailment, the misery it had caused, its obstinacy to all other methods of treatment, the literal instantaneousness of the cure, and the proved certainty that the cure was due to the means designated, this case is quite unique and noteworthy. I have since made it a routine part of my examinations to inquire as to the possible existence of functional digestive derangements in all cases of eye-strain. As a result, I have found that in the young of either sex (but more usually in girls), and in women, where eye-strain of any considerable degree exists, the normal action of the stomach and digestive system is very frequently interfered with, and often to a great extent. I think the reason this has not been recognized and accepted by the profession is that an almost universal belief that no such causal relation can exist, has hitherto prevented proper inquiry.

It is a matter of the commonest observation that digestion is controlled by nervous action and profoundly influenced by emotional states. The old fallacy that the sympathetic system was a "lesser brain," distinct from and unallied with the greater brain, still exercises an unconscious but baneful influence. The two, in fact and in function, are united; and there is nothing illogical in the supposition that a derouted reflex from an irritational strain might travel toward the stomach, or inhibit other currents thither. But, even if apparently illogical, it is a fact.

My experience, as I have said, has been such as to prove that headaches and other reflex ocular neuroses are mostly confined to women and the young. I have elsewhere<sup>2</sup> attempted an explanation of the fact

<sup>1</sup> Ibid.

<sup>2</sup> Medical and Surgical Reporter, March, 1889. The essence of my thought is that in girls and women the irritational eye-strain reflex that normally or physiologically would return eyeward, is inhibited, with the result that headaches follow; or is derouted to other organs that suffer vicariously. The reason of this inhibition, overflow, or deroutation is to be looked for in sexual selection, clear and healthy eyes being of the highest importance in influencing sexual choice through beauty. Hence the corollary that the smallest amount of ametropia in women should be corrected, an amount that in men

that men usually escape such reflexes. Similar reasons might obtain as to their freedom, comparatively speaking, from the gastric reflexes. However this may be, I have found clinically that headache usually precedes, and is usually continuous with, the gastric trouble. This last commonly consists first in an unaccountable loss or fickleness of appetite. As the irritation has created an abnormal amount of nervous energy, nature seeks an equipoise by lessening the production at the point of origin. The mechanism might be not inaptly likened to the action of the governor of a steam-engine—the greater the speed the more the steam is shut off below. An analogous but reverse process physiologically is the automatic mechanism whereby deoxygenated blood, by its action upon the centres of respiration and cardiac inhibition, quickens the action of the heart and lungs. With failing nutrition there is general diminution of vitality, a growing languor and malaise. The irritation continuing, the anorexia proceeds to fits of nausea, and even vomiting, ending finally in one of the many forms of chronic dyspepsia, or “sick headache.” The physician has been appealed to, and long courses of dieting, artificial foods, bitters, mineral acids, or tonics, have been tried in vain. Doubtless every physician vividly remembers a number of such puzzling cases.

One such is very fresh in my mind, though I can only infer, not prove it to have been of this nature:

Mrs. M., who, up to four years ago, had enjoyed perfect health, was attacked with violent gastritis. Nothing could account for it, and no treatment influenced it. All that money and science could apparently do was tried, and two years of wretchedness followed, until, as she said, it finally “wore itself out.” There was no ocular pain or trouble, and, owing to her perfect nervous organization, physique, and resistance, there had been comparatively little headache. I found an hyperopia of three dioptries—that, I believe, explains the gastritis; but I also found what I infer was the explanation of the fact that the gastritis “slowly wore itself out.” This was an insufficiency of the external recti muscles of twelve degrees. I am fully aware of the danger of this manner of reasoning, but I cannot escape the conclusion that the excessive innervation and hypertrophy of the interni had by convergence thrown one eye out of function, and, in a way readily understood, thus in great part relieved the eye-strain.

So far, now, as concerns the more typical and conclusive cases of gastric affections of ocular origin, the general symptoms enumerated are so closely exemplified by the majority of cases that specific detail is unnecessary. I now have notes of sixteen cases that have not reported if they have experienced relief; but I have the most positive and unqualified assurances from twenty-eight others that their loss of appetite, dyspepsia, nausea, etc., more or less speedily disappeared soon after getting their glasses. An example comes in as I write:

could be safely ignored. According to the fineness or delicacy of nervous organization and the preponderating quality of sexual instincts will eye-strain be disastrous to the general health.

Miss M. M., a thin, nervous little lady, came to me two months ago with a history of five years of headache, latterly continuous every day, and the confession that she ate no breakfast, and often no supper. She weighed at that time 103 pounds. She now has no headache unless she leaves the glasses off a few hours, eats three meals every day, and weighs 112 pounds. Her ametropia was only one-fourth of one dioptré of astigmatism.

I have had four cases of complete failure to influence gastric derangements for the better among my patients, but of these the time of trial has been but brief in two. Sick-headache I believe to be most frequently of ocular origin, though, when of long standing, not perhaps curable by relief of the eye-strain.

#### V. APHONIA, WITH OTHER NERVOUS SYMPTOMS, DUE TO COMPOUND HYPEROPIC ASTIGMATISM AND INSUFFICIENCY.

Miss A. U. has for the past seven years been subject to unaccountable attacks of loss of voice. These occurred with no regularity, and the duration of the periods of aphonia was also irregular. For five years the attacks came on every few days, though sometimes she would have none for two or three weeks. They always lasted, at least, for several days, and at one time she was without her voice for eight weeks. The application of the galvanic current by her physician had several times seemed efficacious in bringing the voice back. About a year ago she got a pair of spectacles and for a year, while wearing them, she had no loss of voice. Latterly, the attacks have returned. Since wearing the glasses she has had severe "cramps in the eyes"—blepharospasm—which have grown worse until, coincident with a severe seizure, came also the old-time loss of voice. During this long period of seven years, except in part relieved while wearing the glasses the past year, there have also been attacks of sick-headache every few weeks, and great gastric derangement consisting in loss of appetite, dyspepsia, "rattling of the stomach," and swelling of the same. Has consulted several physicians for this, without relief. Latterly, there have been added numbness and paresis of the right side of the body at intervals, alternating with choreic jerkings of the right hand and foot, insomnia, nervousness, etc. When she applied to me it was impossible for her to utter a vocal sound. I at once used a mydriatic to refract her, and was surprised to find that her voice almost entirely returned within the hour she was at my office. I found the spectacles she had been wearing gave a partial correction of her hyperopia, but left her astigmatism and insufficiency without relief. Her refraction was as follows:

$$\begin{aligned} \text{O. D. } \frac{5}{\text{cc}} + \text{Sph. } 2.75 \text{ D. } \bigcirc + \text{Cyl. } 1.75 \text{ D. Ax. } 50^\circ &= \frac{20}{\text{xxx}}. \\ \text{O. S. } \frac{20}{\text{c}} + \text{Sph. } 1.25 \text{ D. } \bigcirc + \text{Cyl. } 0.62 \text{ D. Ax. } 180^\circ &= \frac{20}{\text{xx}}. \end{aligned}$$

The external recti also showed an insufficiency of  $8^\circ$ . I at once prescribed proper lenses, and since wearing them three months there has been no loss of voice. It is true that the period is short, but coupled with the history of the case and the fact that during these months there have been no sick headaches, no vomiting, no chorea, no insomnia, no blepharospasm, no numbness or paresis, etc., I think the proof conclusive

that the source of the peripheral reflex irritation was the eyes. There are still some pain and sensitiveness about the eyes, and slight frontal headaches. Hysteria is wholly out of the question.

## VI. SUNDRY NEUROSES.

A passing allusion to *headache* is all that is necessary. This, *par excellence*, is the commonest of all mischiefs traceable to eye-strain. Out of over five hundred private cases of eye disease treated in the past year, I find I have noted headache as a complaint in three hundred and twelve. Of those subsequently reporting, out of this class, by far the greater number state a complete cessation of the malady. Only a few have declared themselves but partially benefited, and not entirely relieved, whilst the absolute failures number five.

I have had two cases of *dizziness* and *vertigo* as among the principal complaints, and complete relief followed ocular treatment.

I cannot forbear a mention of the deleterious effects sometimes due to eye-strain, upon the emotions and disposition—even upon the character and life. I have already described<sup>1</sup> several instances in which the *psychological influence of errors of refraction* in the young was inferable or evident:

“The most frequent method in which eye-strain acts disastrously upon the developing personality is in making study and literary labor so irksome that the mind is slowly but irrevocably turned from intellectual pursuits, and directed to physical activities for outlets of its energy.”

In the cases first described in the present paper, the effects of ocular irritation in producing irritability of temper, impatience, lack of self-control, etc., were very evident to the parents and friends of the patients. These influences cannot be overestimated when we think of our school system; our high-pressure civilization; the suddenness of the strain, since the invention of printing, thrown at once upon the naturally hyperopic eye; the interblending of ocular functions with every act, physical and psychical; and the fact that the enormous load is thrown upon the young organism just at its most plastic and formative period.

From the above brief review of a year's "Clinical Illustrations of Reflex Ocular Neuroses," it might to some seem either that I have adapted facts to fit a preconceived theory based largely upon imagination, or that my experience has been altogether exceptional. In reply I would say that my patients can be seen if necessary; that there exists in medical literature a much larger mass of similar examples than is generally known; that if carefully sought for, like results may be found to compel like inferences by other patient investigators; and, lastly, that the bias of prejudice is quite as harmful to scientific progress as the bias of enthusiasm.

119 SOUTH SEVENTEENTH ST., PHILADELPHIA.

<sup>1</sup> Medical and Surgical Reporter, Sept. 29, 1888.

## REVIEWS.

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A CLINICAL ATLAS OF VENEREAL AND SKIN DISEASES, INCLUDING DIAGNOSIS, PROGNOSIS, AND TREATMENT. By ROBERT W. TAYLOR, A.M., M.D., Surgeon to Charity Hospital, New York, and to the Department of Venereal and Skin Diseases of the New York Hospital, etc. Illustrated with One Hundred and Ninety-two Figures, many of them Life-size, on Fifty-eight Beautifully Colored Plates; also many large and carefully executed Engravings through the Text. Part VII. and Part VIII.: Diseases of the Skin. Philadelphia; Lea Brothers & Co.

THE final parts of this work, just issued from the press, are worthy to conclude the series. In its now completed form this Atlas unquestionably supplies not merely a trustworthy treatise on cutaneous medicine, but a portraiture of many of its important subjects by the aid of colored plates which surpass the advantages of many of even the best illustrated textbooks.

As with some of the earlier parts, these last display distinct differences in the value of their plates. The famous Baretta, who has lately brought his method to such perfection that he accurately reproduces vesicles and bullæ in wax, could scarcely do better work than that seen in Plate XLVIII., Fig. 1 (illustrating miliaria crystallina); and, in the case of a somewhat rarer affection, Plate XLIX., Fig. 2 (exhibiting to the eye some of the lesions induced by the ingestion of the bromide of potassium), even if less artistically graphic, has a large clinical value in its suggestiveness. But then, as in some of the other parts, here are also plates which were originally poor and are not better for reproduction, as, for example, the portrait of sycosis originally done by the hand of a German and which might have been executed less coarsely, and given a truer impression of the disease, if it had been carved in wood by a skilful hand.

The portraits of scabies here given, familiar of old to the dermatologist and student, still teach the uninformed how the manual symptoms of "the itch" are declared. When shall we have an illustrator of sufficient daring to show the simple-minded in diseases of this class, how the axillæ look when similarly infested, when the genital region is involved, and the hands exhibit few, insignificant, or no features of the disease?

It has been already shown in the pages of this journal that on many themes the original contributions of the author to the pages of this Atlas have surpassed in value his borrowed illustrations; and it should be added that among the latter his own portraits are conspicuously valuable and original. In none of these can he have a juster pride than in his truly admirable representations in color and by the aid of woodcuts of lichen planus and lichen ruber (Plates LIII. and LIV., and Cuts 63 to 66).

These are not equalled by those published elsewhere, and actually supply the best portraits of the diseases named yet given to the scientific world. They are accompanied by a carefully written description of the maladies based upon a painstaking study of the evolution of the clinical symptoms exhibited in patients under the author's observation and upon a discriminating recognition of the several phases of these rare and odd lichenoid skin symptoms. One may write "lichenoid skin symptoms" advisedly, for it is now almost needful to look at a rare affection of any portion of the human body from the distant points of view afforded by two continents before pronouncing definitely upon its nature. Dr. Taylor poses unreservedly for the American view, of which it may be said that he and Dr. Robinson, of New York, are the chief exponents, in declaring that "lichen planus and lichen ruber . . . are entirely distinct from one another; no relation whatever between them has ever been shown to exist, nor are there any cases on record in which they have been present on the same patient at one time, nor have they ever been known to alternate with each other in occurrence." He considers that lichen planus is pathologically an inflammatory process involving the rete and "upper part of the dorsum (?)" with cell infiltration; while lichen ruber is explained by the occurrence of epidermal hypertrophy and inflammatory exudation involving the corium.

All this may be exactly true, but one has need to remember not only that the statement is not as yet received as exact by a large number of scientific men on the continent of Europe recognized as having ability and experience, but also that the number of cases of lichen ruber seen by all observers is as yet relatively small—as also the not unimportant consideration that Kaposi himself at the late Congress of Dermatologists and Syphilographers, in Paris, publicly declared that he had actually observed typical lesions of these alleged different disorders on the person of one patient at one and at different times. Even a very few observations of this sort would at least tend to weaken the force of our author's denial of relationship between the symptoms grouped under these two names, and justify such a phrase as lichenoid symptoms. Surely the vesicular and sclerous pictures of eczema more widely differ than do the portraits of lichen planus and lichen ruber given by our author; and even pathologists will agree that an involvement of the epidermis at one date may at another be succeeded by an infiltration of the deeper tissues of the corium.

But Dr. Taylor's original and forcible setting forth of all the facts in this connection is wholly praiseworthy and excellent. On this alone, even if one had no consideration of his equally original and careful study of fibroma of the skin—(here, alas! catalogued under its ancient and misleading title of "molluscum fibrosum"! ), Dr Taylor might well rest the deserved reputation of his fine Atlas. It is a credit to him and to his publishers, who seem to have spared no expense in making its pages as handsome as those of the *éditions de luxe* of my lady's drawing-room.

The work is heartily commended to the practitioner and student as an exceedingly valuable means of acquiring a practical knowledge of the important subjects illustrated.

J. N. H.



CONTRIBUTIONS TO THE SURGERY OF THE SPINAL CORD. By WILLIAM THORBURN, B.S., B.Sc., M.D. 8vo. pp. 230. Philadelphia: P. Blakiston, Son & Co., 1889.

THIS treatise is an extension of the various disconnected papers that Mr. Thorburn has published upon this subject, with a great deal of additional original material. The first five chapters of the book are taken up with a description of cases arranged upon an anatomical basis, and constitute a very valuable addition to our information as to spinal localization, and as to the connection between motor and sensory symptoms and the seat of the lesions which produce them. It cannot fail to be of great aid to the surgeon who may meditate operative interference with the spinal cord or canal, and will in many instances enable him to approach the seat of operation with much more certainty than at any time hitherto.

Chapter VI. takes up the indications for operative treatment in affections of the spinal cord. There is an excellent review of the histories of the operations for traumatic lesions which have been recorded, and the details are given of five cases which have come under the author's recent observation, in which trephining of the spinal canal was performed. He gives a table of fifty-six other cases, which include all that he has been able to collect. As regards operation he asks the following questions:

*First.* Are spinal injuries curable without operation? In regard to this, he concludes that in a small percentage of cases, in which the symptoms indicate only a partial transverse lesion of the nervous structures, recovery may begin shortly and progress steadily. In these cases we do not require, and, therefore, should not practise, an operation. In all others—in cases in which the transverse lesion is complete, in which, although it be partial only, there are no signs of improvement within a week or two, or in which improvement, after having gone on steadily for a time, comes to a standstill—recovery will not ensue. For these cases he concludes trephining might be practised in the absence of any other means of relief.

*Second.* Is the operation itself necessarily fatal or so dangerous as to be unjustifiable? To this he replies that necessarily fatal it obviously is not, and under other conditions it does not appear to be a very dangerous procedure. Of the total of 61 cases which he has recorded, only 35 died, or 57 per cent. Gurlt has recorded 217 deaths out of a total of 270 fractures; that is, about 87 per cent. The proportion of deaths after operation, even as he gives it, is certainly not to be regarded as a very powerful deterring influence in this very serious class of injuries, but, as a matter of fact, all deductions drawn from tables which, like this one of Mr. Thorburn's, include all recorded cases, going back to pre-antiseptic and even pre-anæsthetic eras, are practically useless at the present day. Exclusive of the cases recorded by Mr. Thorburn himself, it is safe to say that there are not more than about 13 cases of trephining or resection of the spine for fracture, which should be considered as offering material for sound deduction. These 13 cases show the following results: Three complete recoveries, two recoveries from the operation with benefit, seven recoveries unimproved, and one death. It becomes evident, when this fact is borne in mind, that the

average of 57 per cent. mentioned by Mr. Thorburn, is far beyond any death-rate which should be expected at the present day.

*Third.* If successful, is it likely to leave the vertebral column in a condition too weak to perform its function? In no single instance in which the results of operations have been recorded, was such a consequence observed, so that this question may immediately and finally be answered in the negative.

*Fourth.* Does the operation hold out any prospects of recovery in all or any cases? and if the latter, in what cases? His remarks in answer to this question may be summed up as follows: The operation for trephining the spine for traumatic lesions, as compared with the condition which it is intended to relieve, does not present any great dangers, and appears unlikely to increase the gravity of the prognosis, but as both *a priori* argument and the results of published cases show that it is unlikely to be of service, it should be abandoned, except in cases of injury to the cauda equina; in the latter, on the other hand, it will probably prove to be an eminently justifiable and serviceable procedure.

He recognizes the fact that the evidence seems to be, as regards caries, thoroughly conclusive, that the cause of paralysis in Pott's disease is not, as a rule, a transverse myelitis or a hopeless degeneration, and is not due to the pressure of the carious or displaced vertebrae, but is, in the majority of cases, the result of an external pachymeningitis which results in the formation of an extra-dural connective tissue tumor. He makes the obvious statement that we can only hope for good results if in trephining in these cases we freely remove the thickened perimeningeal connective tissue, but calls attention to the fact that paralysis secondary to spinal caries has, even when of long duration, a remarkable tendency to recovery if the recumbent position be rigorously maintained. While this is doubtless correct, its too liberal acceptance would tend to prevent operations in this most promising class of cases. Mr. Macewen's results show what can be gained with patients in apparently hopeless conditions, but should not be regarded as warranting undue delay. General failure of nutrition, or the development of bedsores, should, in our opinion, be accepted as distinct indications for operative interference, and it seems probable that in the future, in all cases of paralysis from spinal caries, we should, after (1) evacuating pus whenever it is accessible, and (2) having treated the patient by the extension process with a plaster jacket, proceed at once to a resection if these methods prove unsuccessful.

Having thus considered caries, fractures, and luxations, Mr. Thorburn adds, under the head of "Other Pressure Lesions," that as it has been proved that the operation of trephining falls within the range of practical surgery, and that chronic pressure lesions of the cord are, even after long duration, susceptible of very great, if not, in some instances, perfect, recovery, it follows that the operation is practicable and advisable in any such disease in which the source of pressure is accessible for removal, and is not amenable to other methods of treatment.

In the succeeding chapters he considers the ophthalmoscopic changes connected with injuries of the spinal cord, and with traumatic neuroses, adding some original observations of his own; and in the final chapter, under the head of "traumatic hysteria," the various conditions which have been known in acute cases, under the name of "shock," or "collapse," or "acute hysteria," and in chronic cases under the title of "neurasthenia" or "chronic hysteria." This arrangement, as he says himself,

is somewhat arbitrary, but it is also, as he claims, useful for the purposes of reference and of description. He defines traumatic hysteria as a functional affection of the nervous system resulting from an injury, due probably to a change localized in some portion of the cerebral cortex, and manifested by correspondingly well-defined and localized symptoms. Or, he adds, we may say that it has no known organic basis, that it is not reflex in origin, and that it is neither shock nor neurasthenia.

While we cannot endorse some of Mr. Thorburn's conclusions, notably those as to non-interference in traumatic lesions, and believe that a careful study of the cases contained in his tables will show that those conclusions are not fully warranted by the premises, we can yet cordially congratulate him upon the character of the work as a whole. It shows not only research and industry, but also marked power of careful and painstaking clinical observation, and is written in an agreeable and unaffected style. We will look with pleasure for Mr. Thorburn's further contributions to surgical literature.

J. W. W.

**DISEASES OF THE EYE. A PRACTICAL TREATISE FOR STUDENTS OF OPHTHALMOLOGY.** By GEORGE A. BERRY, M.B., F.R.C.S. Ed., Ophthalmic Surgeon, Edinburgh Royal Infirmary; Senior Surgeon, Edinburgh Eye Dispensary; Lecturer on Ophthalmology, Royal College of Surgeons, Edinburgh. With colored illustrations from original drawings. 8vo., pp. xvii., 670. Edinburgh and London: Young J. Pentland, 1889.

**THE SAME.** Philadelphia: Lea Brothers & Co., 1889.

THE previous work of this author in his chosen field of ophthalmology causes one familiar with it to take up his present systematic treatise with a good deal more interest than the simple addition of one or more to the many books on the subject already extant can commonly awaken. And such an interest will not fail of gratification and justification in a careful reading of this book.

On looking over the work, one is first struck with the excellent way in which the printer has done his part, and particularly with the colored illustrations, of which there are some fifty or sixty interspersed throughout the text. These are all new, representing sketches made especially for this work by Dr. J. Tatham Thompson, of Cardiff. They are nearly all of them excellent, some revealing high artistic skill, and they have been admirably reproduced.

The plan of the work divides it into three sections. The first, headed *Diseases of the Eye*, is made to include also injuries, foreign bodies, congenital anomalies, and color-blindness. The second, by what would seem rather a reversal of the natural order, has chapters on errors of refraction and accommodation, affections of the oculo-motor muscles, and on the examination of the eye. And in the third section, consisting of a single chapter of forty pages, are described the various operations. This "bunching" of the operations saves in many cases from repetition and cross-references; but the separation of the description of the operation from that of the condition that necessitates its performance, is not suited to

the clear presentation of slight departures from the usual form of operation to meet special indications.

Probably the peculiarity which detracts most from the value of this work is the exclusion of all reference to other books and papers. It is not that the author fails to credit the various discoveries, theories, investigations, or views to their originators; they are named with almost excessive frequency, but only the name of the individual is given, without any indication as to where his publication on the subject is to be found. Now, one does not often buy a book solely or chiefly for the references it contains, and worthless or injudicious references, introduced for display, are the height of vanity and vexation of spirit. Then, too, the labor of verifying references and securing their accuracy is immense, and not likely to be appreciated by the general reader. Still, if one becomes interested in a subject, he is not likely to be entirely satisfied by the paragraph given to it by any single writer in a general text-book, but will finish the passage with a whetted appetite for other men's views of the matter. And, in that case, one or two good references to papers that in turn refer the reader to others, may open up to him the whole literature of the subject. Valuable as are the recently issued medical indexes and catalogues, they are yet far from that state of perfection that would render obsolete the appended references or condensed bibliography that may well accompany every good chapter or monograph.

Mr. Berry's work does not need to exclude references to give it an appearance of originality. Every part of it shows that the common stock of professional knowledge has, in its author's mind, undergone a process of digestion and assimilation that fully justifies him in laying it before us again in the form of a new book. On this account, there is more of interest in it to the ophthalmic surgeon than in any other work in the language that has appeared for a number of years.

This treatise, while in most respects fully deserving the adjective practical, can hardly be regarded as meriting it for some of the parts dealing with physiological optics. The allotment of relative space here is very far from corresponding with the practical importance of the various subjects, though any one who enjoys a nice mathematical demonstration, with the aid of well-chosen and well-printed diagrams, can easily forgive such a lapse. Quite noticeable, though of really slight importance, are the few very obscure and imperfect sentences, indicating a lack of proper revision, and the incorrect page headings, which may also be regarded as an evidence of haste. But in general the literary execution is excellent, and the number of typographical errors that have escaped the proof-reader is extremely small.

The work is particularly strong in the direction of the subjective symptoms of visual derangement, and the diseases of which they are the most important manifestations. It is, however, no longer a fair reflection of the best light we have on the subject to separate toxic central amblyopia from retro-bulbar neuritis and regard it as probably due to some quite different pathological condition. But all subjects treated are taken up in a fresh, original way, which will be found interesting and suggestive by the oldest student of ophthalmology. For example, take this opening passage of the chapter on Diseases of the Cornea:

"The corneal tissue may be the site of inflammatory products, deriving their origin from a focus of inflammation which is situated either in the cornea itself, or in some part of the eye. In the first case we may talk

of a *primary* or true *keratitis*; in the second there is, properly speaking, no *keratitis*, but merely a more or less dense, diffuse infiltration of the cornea, similar in every way to the hyperæmic and œdematous area of infiltration which surrounds a focus of inflammation in any other part of the body. The condition is one, then, of secondary diffuse infiltration of the cornea, secondary as distinguished from a similar infiltration surrounding a primary inflammation of the cornea; or, shortly, *secondary keratitis*, if it be remembered that the secondary refers to the focus of inflammation being elsewhere, and not to the time at which the corneal changes become manifested."

In conclusion, we congratulate the author and the profession that this book brings them into relations that promise to be advantageous to both.

E. J.

LAVORI DEI CONGRESSI DI MEDICINA INTERNA. PRIMO CONGRESSO TENUTO IN ROMA NELL' OTTOBRE, 1888. Pubblicazione fatta per mandato del Comitato Ordinatore dal PROF. EDOARDO MARAGLIANO, Ordinario di Clinica Medica nella R. Università di Genova.

TRANSACTIONS OF THE FIRST CONGRESS OF INTERNAL MEDICINE, HELD AT ROME IN OCTOBER, 1888. Published by order of the Committee of Arrangements, by EDOARDO MARAGLIANO, Ordinary Professor of Clinical Medicine in the Royal University of Genoa. 8vo., pp. 399.

THIS first volume of *Transactions of the Italian Society of Internal Medicine* may well serve as a model for all succeeding ones. Its contributors are, for the most part, men whose names are well known throughout the scientific medical world, and are, in several instances, identified with the subjects they have chosen to discuss. For example, Cantani contributes an elaborate paper on diabetes mellitus; Marchiafava presents a communication on malarial infection, and Tomaselli discusses at length the subject of quinine intoxication.

The first-mentioned paper is probably the most important of recent additions to the literature of diabetes mellitus. For this reason, as well as on account of its thoroughly practical character, it is selected from a number of excellent contributions, for somewhat extended notice.

According to Cantani, diabetes mellitus begins with non-combustion of a fraction of the ingested carbohydrates, the larger portion being still consumed, and hence there appears in the urine, which, as a rule, is not increased in quantity at this early stage of the affection, only the non-assimilated sugar. Gradually less and less sugar is consumed, until finally there arrives a stage when the amount excreted with the urine corresponds exactly to that ingested. It is, therefore, no real privation to eliminate hydrocarbons from the diet of a diabetic, for they serve no nutritive purpose. They act as poisons, being excreted unchanged, or nearly so, by the kidneys, and are the chief cause of the polyuria and its pernicious results.

The abuse of farinaceous and saccharine substances, leading to exhaustion of the power of the organism to assimilate and consume them, is held by Cantani to be the principal cause of diabetes, and this view is

supported by the following statement of De Renzi. In few cities, the latter affirms, is there so much meat consumed as in Genoa, while in Naples the diet of the people is largely farinaceous. In the former, diabetes is so rare a disease that it is difficult to obtain a case for clinical purposes, whereas, in Naples, it is not uncommon to have twenty or thirty cases under treatment at one time.

An absolute and prolonged repose of the exhausted function of assimilating sugar is the therapeutic inference from these views, and this object is obtained by the following regimen: an exclusive diet of animal food for at least three months, excluding fish, either fresh or dried, mollusks, eggs, soup, the viscera of animals, excluding the liver and giving preference to the pancreas, cooked ham and pancreatized animal fats, such as lard and butter; salt and sometimes pepper, black tea and coffee, both without sugar, and instead of wine rectified alcohol in carbonated water, water flavored with orange flower, mint, fennel, anise, or cinnamon; and instead of vinegar, which often contains glucose, acetic or citric acid, added to water in minute quantity. All farinaceous and saccharine foods, all fruits, milk and milk foods, cognac, rum, and green vegetables are absolutely prohibited.

The only drugs to which Cantani attributes any value in the treatment of diabetes are alkalies, and preferably in the form of alkaline lactates. Such compounds are combustible by the diabetic organism, and may, therefore, supplement, to a certain extent, the non-combustible hydrocarbons. It is largely owing to the coincident administration of alkalies that apparent success has attended the treatment of diabetes by dietetic methods less rigorous than those of Cantani. The therapeutic virtues of Carlsbad, Vichy, Vals, and Neuenahr are due to the alkaline waters of these resorts, of which the effect is heightened by change of air, scene, and absence from business cares, the *procul negotiis*.

It is an interesting fact, of which many a parallel can be found in medical literature, that the two latest writers on diabetes, Ebstein and Cantani, are agreed as to the treatment of that disease, although their views regarding its pathogenesis are diametrically opposed. Ebstein having ascertained by ingenious experiments that carbonic acid retards the combustion of sugar outside of the body, employs this fact to explain the non-combustion of sugar by the diabetic. He holds that diabetes is due to a universal alteration of the protoplasm of the body, in virtue of which it produces from a given amount of carbon-containing substances less than the normal amount of carbonic acid. This diminished production of carbonic acid is insufficient to restrain within normal limits the action of the diastatic ferment upon the glycogen contained throughout the entire organism, and especially in the liver and muscles. In consequence an excessive amount of glycogen is converted into sugar, giving rise to the glycæmia and glycosuria of diabetes. Cantani, on the other hand, admits the diminished production of carbonic acid, but considers it a result, not a cause, of the disease. Ebstein's theory does not explain the disappearance of sugar from the urine shortly before death, which occurs even though sugar be administered to the patient, without unwarrantably assuming either that the diabetic, at this stage, produces enough carbonic acid to restrain the action of the diastatic ferment within normal limits, or that this ferment is entirely wanting,

The difference between the views of Cantani and Ebstein concerning the pathogenesis of diabetes is traceable to the different opinions held by

each with reference to nutrition and tissue-change in health. Ebstein holds, with the majority of physiologists, that the ingested sugar, in health and disease, is converted into glycogen, and as such deposited in the organs and tissues. The healthy organism produces an amount of carbonic acid sufficient to restrain within combustible limits the conversion of glycogen into sugar, whereas the diabetic produces so little carbonic acid that the production of sugar is excessive, and overflows, so to speak, into the blood and urine.

On the other hand, Cantani believes in a direct combustion, without previous conversion into glycogen, of a large, perhaps the larger, portion of the ingested hydrocarbons, and recognizes in such combustion the principal source of animal heat. If, says he, we compare the quantity of sugar and urea in the urine with that of the ingested hydrocarbons and albuminates, we find them to correspond so exactly that we can regulate at will the amount of the former. This would scarcely be possible, if all the ingested hydrocarbons had first to be transformed into glycogen, and all the albuminous substances to be first appropriated by the organs and tissues. Again, if, after causing the sugar to disappear from his urine by fasting, we administer hydrocarbons to a diabetic, glycosuria will be observed two or three hours thereafter, a time too short for it to have been transformed into glycogen and again converted into sugar.

These are some of the many interesting points of this excellent paper, the eminently practical character of which is attested by the fact that the author's conclusions are based on a study of more than one thousand cases.

Marchiafava presents a short communication on malarial infection, confining his remarks to the alterations of the blood-corpuscles. He is more than ever convinced of the parasitic nature of malaria. In the debate following his paper Maragliano and Mosso call attention to the remarkable resemblance of degenerated blood-corpuscles to the forms held by Marchiafava and others to be of parasitic origin. Marchiafava replied that the resemblance is only superficial, and that a close comparison of the forms of degeneration with those of malarial poisoning brings the conviction that the two are totally distinct. The researches of Councilman and Osler have made the profession in America familiar with this subject. It is, therefore, of great interest and practical importance to bear in mind that the blood-corpuscles may undergo degenerative changes so closely resembling those of malarial infection that none but an expert could readily distinguish between them. Such changes have been observed in the blood of scarlet fever, and were erroneously attributed to the plasmodium malariae.

Alberico Testi, of Faenza, contributes an interesting paper on the use of thymol in the treatment of typhoid fever. The properties of this substance are such as to render it the best of all known intestinal antiseptics, and the writer can confirm, from an abundant experience, all that Testi says in its favor. Its beneficial effect in typhoid fever is shown in the gradual and permanent reduction of temperature, the disappearance of meteorism, and the absence of notable nervous disturbance. That it acts as an intestinal antiseptic is proved by the diminution or disappearance of urinary ingredients, such as phenol and indican, which are known to be the result of intestinal decompositions and putrefactions. While it cannot be maintained that thymol exerts a specific action upon the Koch-Eberth bacillus, it is impossible to deny that it modifies, in a most favorable manner, the putrid intestinal processes to which the grave

symptoms of typhoid fever are so largely due. Testi concludes by expressing his belief that, in the absence of specific remedies, the administration of thymol, combined, in the gravest cases, with a rational employment of hydrotherapy, offers the best prospect of success in the treatment of typhoid fever.

F. P. H.

INDEX-CATALOGUE OF THE LIBRARY OF THE SURGEON-GENERAL'S OFFICE, UNITED STATES ARMY. AUTHORS AND SUBJECTS. Vol. X.: *O—Pfutsch*. 4to., pp. [10] 1052. Washington: Government Printing Office 1889.

NINE times have we directed the attention of the profession to the predecessors of this noble volume—and the words of praise and congratulation we have repeatedly and truly used, may in all verity be applied to this member of an illustrious family. With safety and with pleasure can we for the tenth time speak of the greatness of the original scheme and the ability and energy with which it has been carried on. From the prefatory report by which Dr. Billings introduces the volume to the Surgeon-General we learn that Vol. X., "*O—Pfutsch*," includes 7,658 author-titles representing 2,905 volumes and 7,282 pamphlets. It also includes 14,265 subject-titles of separate books and pamphlets, and 29,421 titles of articles in periodicals. Usage accustoms us to almost everything, and until we pause to think of the vast field covered by and the multiplication of titles contained in this volume, we are apt to think of it as we do of other books which express the thoughts and labors of men's lives. As we con over a page, however, and find recorded the works by which some name has become familiar to us in the literature of our science—as we note the date of its first appearance, and so generally the date which terminated all work by it, we feel that there may be much of human interest, much appealing to human sympathy, even in so gravely scientific a work as this index-catalogue.

But enough is known to the profession concerning this great work so surely, steadily, yet withal slowly approaching its completion. The mechanical necessities attending the passage of a work like this through the press forbid us to hope for its very speedy completion, desirable as such a consummation must appear to every one interested in the progress of the work. Already the progress of medicine has made many things obsolete which were approved when Dr. Billings began his great work. Thus under the large heading of "*Observations*," so popular a few years ago, we notice some upon the lateral operation for stone, which when the catalogue was begun fairly represented the state of our knowledge; but now, within a short time, it has become a question whether that operation will at all survive, while it is certain the coming surgeons will never have the opportunity to achieve a reputation by extended series of cases recording how often they ventured up to the bladder through the narrow portals of the perineum with the bony pillar of the ischial and pubic rami on one side and the urethral bulb on the other.

Again it is our pleasant duty to congratulate Dr. Billings and the profession to which upon so many occasions he has been both an ornament and an aid, that his *magnum opus* is progressing so steadily and so well.

S. A.



# PROGRESS OF MEDICAL SCIENCE.

## THERAPEUTICS.

UNDER THE CHARGE OF

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ASSISTANT PROFESSOR OF THERAPEUTICS IN HARVARD UNIVERSITY.

### RECENT HYPNOTICS AND ANALGESICS.

As the result of the combined work of the chemist, the pharmacologist, and the therapist, there have of late years been given to the profession several new and active remedies. The classes of drugs included under the hypnotics and analgesics have been largely increased, though the value of many of these novelties is still undecided.

PROF. LEECH, in a discussion before the Section of Pharmacology and Therapeutics of the British Medical Association, at the meeting held last August, has made an interesting contribution to this subject, and has outlined in a most excellent manner the fields of usefulness of these remedies. His paper is limited, for the most part, to a consideration of the hypnotics connected with the fatty series. In this class, however, are contained all but three of the newer sleep-producing agents, and of these, two, hyoscine and tannate of cannabin, are only old friends with new faces, whilst the third, boldin, or boldo-glucin, has neither been thoroughly investigated nor practically employed.

The following hypnotics have been brought into use in the past seven years: urethan, acetal, methylal, sulphonal, amylhydrate, hypnone, chloralurethan, and chloralamide. The fact that hypnotics have been sought for, and so largely found, amongst combinations connected with the fatty series, is well worthy of note.

The alcoholic radicals, or alkyls, of which methyl and ethyl are familiar examples, tend to give the compounds into which they enter a power of depressing the functions of the higher cerebral centres, and of producing either sleep or that complete insensibility to external impressions known as general anæsthesia; by their further action, the motor and reflex centres are weakened, and eventually the vaso-motor and respiratory centres and the cardiac ganglia

lose their power, the nervous centres being affected in the inverse order of their development.

Very little is known as to the laws which govern the appearance of this influence in the various classes of combinations into which the alcoholic radicals enter, but it is possessed by so many of these combinations that pharmacologists have been led to search among them for those which most effectively depress the higher nervous centres without exerting a deleterious influence in other ways, and this search has led to the large addition to our sleep-producing agents shown in the list.

The halogen elements, chlorine, bromine, and iodine, have, too, a tendency to depress the functions of the higher nervous centres, but they likewise tend, more than the alkyls, to depress the functions of the lower centres which preside over respiration and circulation, and they influence the heart more markedly, weakening its action; the combination of an alkyl with chlorine, or the replacement of one or more of the molecules of hydrogen in an alkyl compound by chlorine, will in many cases augment its influence on the nervous system, but at the same time it increases its depressing effects on the circulation and respiration. By combining chloral with other groups, it has been sought in some degree to minimize these possible evils, and the last two substances in the list have been introduced with this view.

Apart from chemical structure, the physical properties of compounds influence their physiological effects; hence it is that some of the combinations into which alcoholic radicals enter are anæsthetic, some hypnotic; anæsthetics being found amongst those substances which are volatile and quickly eliminated, soporifics amongst those which have a heavy molecule, and are either liquid or soluble, so that they may be given by the mouth, and, being absorbed into the blood, may continue to act.

Of the hypnotics introduced in the past ten years, two, acetal and hypnone, have given but little promise of utility, and we have not sufficient data concerning the action of chloralurethan and chloralamide to discuss their relative merits as compared with other hypnotics.

The other newer hypnotics, urethran, methylal, amyhydrate, sulphonal, and paraldehyde, are compared with chloral and the older hypnotics; the advantages and disadvantages of each are pointed out, and the special sphere where each is indicated is suggested.

Like chloral, they possess little, if any, analgesic action; all may at times relieve pain by causing sleep, and rarely they may seem to remove pain, but none of them possesses that wonderful power of preventing pain which opium has.

It is difficult to estimate the relative hypnotic power of drugs, but the order of potency seems to be as follows: 1, sulphonal; 2, amyhydrate; 3, paraldehyde; 4, urethan; 5, methylal; none of these drugs equals chloral in the certainty of its effects. It seems probable that a dose of sulphonal has, as a rule, about the same soporific action as three-fourths of its weight of chloral; and von Mering is of opinion that half a drachm of amyhydrate has the same power as fifteen grains of chloral, or forty-five minims of paraldehyde.

The time in which sleep is brought on will vary much, according to the condition of the stomach at the time of administration; but it depends, too, on the readiness with which they can be absorbed. Urethan, being soluble

and non-irritating, is most rapid in its action; a tendency to sleep is often noticed a few minutes after administration. Paraldehyde and amylyhydrate are also rapid in their effects, but sulphonal, more than chloral or any other drug, is slow in producing its effects, and two or three hours not infrequently elapse before they are apparent, though at times sleep follows in from one-half to three-quarters of an hour.

The duration of the action of these drugs depends partly on the potency of their cerebral influence, partly on the rapidity of excretion. On the latter account, the hypnotic effects of urethan most quickly pass away; and if the tendency to sleep, soon after its exhibition, be counteracted, its influence is not again observed. Methylal, too, is very quickly eliminated. The other new hypnotics, when given in sufficient doses, seem to produce, like chloral, a sleep of five to seven hours.

After a dose of chloral, a patient is occasionally sleepy during the following morning, and the influence of the drug is sometimes noted on the second night after its administration: this prolonged deferred action is more marked and frequent after sulphonal than after chloral or any other hypnotic; indeed, it is one of the chief objections to the use of sulphonal, and it cannot always be prevented by giving the drug some hours before bedtime. In the weaker hypnotics this deferred action is rarely seen. As regards the possible dangers of these hypnotics: of chloral, a larger dose than twenty grains is capable of producing a fatal result; sulphonal, even in huge doses, has never produced death, though thirty grains caused cyanosis and a semicomatose condition in a patient suffering from arterio-sclerosis. Paraldehyde and urethan seem quite devoid of danger; concerning amylyhydrate and methylal we know too little to speak with certainty, but there is reason for believing that in very large doses grave evils may be produced by both.

Among the unpleasant effects connected with the nervous system excitement, instead of sleep, has been known to follow the use of chloral; amylyhydrate, too, though very rarely, has produced excitement before sleep. After sulphonal patients sometimes pass a restless and excited night, occasionally there are bewilderment and restlessness, rarely delirium. Paraldehyde is practically free from this inconvenience. It may be that the greater popularity of sulphonal makes us better acquainted with its effects; but none of the other hypnotics seems to produce such disturbances of the nervous system as those reported after sulphonal, though amylyhydrate occasionally causes headache, giddiness, and a feeling of drunkenness. All the hypnotics probably have some direct action on the spinal cord, but the comparative influence of the newer hypnotics on spinal centres requires further investigation.

It is with regard to the influence on circulation and respiration that the newer hypnotics differ so markedly from the older. Chloral, under some conditions, in not very large doses, may give rise to danger owing to its effect on the circulation; it may tend to weaken the respiration, though not so powerfully as opium, whose evil effects are seen chiefly in its depressing influence on the respiratory function.

The newer hypnotics are, to a large extent, devoid of this influence, and very rarely affect the circulation and respiration unless given in such doses as are not used medicinally. The newer hypnotics containing alcoholic radicals produce very little effect on circulation and respiration, and in these

ways are superior to both chloral and opium. In the case of methane this is what might be expected from the chemical constitution of the drug, for in it we have an alkyl compound, into which carbamic acid also enters; now carbamic acid contains the amidogen group  $\text{NH}_2$ , which tends to stimulate the respiratory centre, and an ethyl compound of carbamic acid is likely to have communicated to it the special influence of the  $\text{NH}_2$  group.

Gastric disturbances do not commonly occur after the exhibition of chloral or any of the newer hypnotics. The flushing, blotchy rashes, and purpura which chloral hydrate produces, owing to its influence on the vascular system, and perhaps, too, on the blood, are not usually seen after any of the newer hypnotics.

The effects of habituation on the action of the newer hypnotics has not yet been settled; it is probable that the system does not readily become tolerant of them, and that the dose does not have to be increased. In the case of sulphonal a cumulative action is possible, but the other hypnotics of this class are not cumulative in their action.

Bromide of potassium is often a satisfactory and safe remedy in many forms of insomnia; but, this failing, we are often bound to resort to some other drug. Recourse to chloral hydrate is a possible cause of great evil; it is seductive, and many have received great injury from it. It seems to be well proved that the system does not get so habituated to chloral that large doses can be taken without danger, and there seems to be good reason for believing that fatal consequences at times arise from a dose which has several times previously been taken with impunity. We ought never at once to order chloral for simple sleeplessness, but should first order one of the newer hypnotics. In slight cases urethan in doses of from 20 to 30 grains, is often very successful. It is not disagreeable, especially when given in a sweetened, slightly flavored mixture; and of all the hypnotics it is the least likely to give rise to dizziness, headache, or other discomfort. It should be given immediately before the patient settles down to sleep, for it is quickly absorbed, and the slightest disturbance may prevent its good influence. Though the effect of the drug is of short duration, the sleep induced is continued naturally. If necessary, the dose may be increased up to two drachms; a larger dose than this at times causes dizziness, if it does not produce sleep.

The tastelessness of sulphonal has rendered it a favorite remedy in simple sleeplessness. Doses of from 10 to 15 grains often fail, and it is necessary to raise the dose to 20 or 30 grains; larger doses are sometimes recommended, but, from doses above 20 grains, troubles affecting the nervous system are sufficiently common to render some warning to the patient with regard to their possible occurrence desirable. It should be administered, finely powdered, in soup or warm milk, some hours before bedtime.

Paraldehyde is a nauseous remedy, and no one can take it secretly, as the breath always indicates the nature of the drug swallowed. Amylhydrate should be administered in plenty of water, as eight parts of water are required to dissolve one of it.

Hypnotics may sometimes be used in combination when they fail singly; chloral and urethan are often of signal benefit. When sleeplessness is due to pain no other drug approaches opium in value; after opium, though at a long

interval, comes chloral, and below chloral in efficacy come the other hypnotics, urethan being the weakest of all.

In cardiac affections accompanied by sleeplessness opium stands out prominently as the best soporific, especially when given in the form of subcutaneous injections. Chloral hydrate is always to be looked upon with suspicion; the more harmless soporifics should be tried first.

In the sleeplessness attending lung affections opium is, of course, out of the question; chloral should be used after milder remedies have been tried. Amylhydrate seems to have some advantages over the others in these cases.

Where delirium is associated with sleeplessness, as in delirium tremens, the milder hypnotics usually fail unless given in very full doses, and urethan is of little value. The older hypnotics, chloral and bromide of potassium, are more effective remedies. In cases of sleeplessness with delirium hyoscyne is often used with much advantage, especially where great mental disturbance is accompanied by considerable excitement of the circulation. In mental diseases chloral in continued doses may give rise to serious evils, and opium is a two-edged sword; bromide of potassium often fails, unless given in quantities to affect seriously the heart; urethan is too feeble; sulphonal, paraldehyde, and amylhydrate, all have their advocates, and in moderate doses seem worthy of trial. As amylhydrate has been known to produce very serious effects when given in excessive doses, and sulphonal, in large amounts, is capable of giving rise to unpleasant nervous phenomena, it appears probable that paraldehyde is the best drug to give when hypnotics have to be administered in full doses and continuously. Dr. Clouston, after long experience, believes that in mental cases paraldehyde is the purest and least harmful hypnotic when insomnia is marked and intractable. He begins with 40 minims or a drachm, and goes up to 2 drachms in ordinary cases, sometimes 3 or 4. Sulphonal, he says, will not compare with it. Other observers praise sulphonal, especially if given in small and repeated doses.—*British Medical Journal*, November 2, 1889.

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#### SOMNAL.

A new hypnotic, which has been named somnal, by some somnol, is described in a Berlin pharmaceutical journal by HERR RADLAUER, who states that, chemically, it is ethylated chloral-urethan. It has a melting-point of 107° F. It is not acted upon by nitrate of silver or by acids, and may be prescribed in half-drachm doses, dissolved in water with a little syrup of some kind. As a rule, such a dose as this acts in about half an hour, and produces six or eight hours' sleep. No unpleasant after-effects have been observed. There appears to be no interference with the digestive, circulatory, or respiratory organs, so that, according to the writer, the new drug has all the advantages of chloral without its disadvantages.—*Lancet*, November 16, 1889.

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#### SACCHARIN AS A MEANS OF ACIDIFYING THE URINE.

While it is usually not difficult to render an acid urine alkaline, our means of rendering an alkaline urine acid are less satisfactory.

When saccharin was first announced, it was mentioned among its proper-

ties that it was unaffected by the digestive fluids, and was eliminated unchanged in the urine. Some time later DR. ANDREW H. SMITH had occasion to manipulate with this substance, and was struck with its strongly acid property; it occurred to him that so decided an acid, of such a stable composition as to resist decomposition in the system, and electing the kidneys as its way of exit from the body, would supply exactly the agent required for acidifying the urine.

The idea was tested on a boy suffering with transverse myelitis, whose urine, which required to be drawn with the catheter, was ammoniacal and very offensive. A few grains of saccharin, administered three times a day, promptly changed the reaction of the urine to acid, and did away completely with the offensive odor; not only so, but the irritation of the bladder became less and the formation of pus was diminished.

Shortly after this, Dr. Smith was in attendance upon a case of subacute meningitis in a child twenty months old. The urine, which dribbled constantly into the diaper, was alkaline, and its odor, though not ammoniacal, was peculiarly sickening. Every effort was made in the way of cleanliness, but the atmosphere about the bed was extremely disagreeable. Small doses of saccharin were prescribed, and immediately removed the fetor, to the great relief of the parents and attendants.

A third case was that of a woman of eighteen who was suffering from acute cystitis. The urine was alkaline and contained a large amount of ropy mucus and pus. An attempt to wash out the bladder was abandoned, on account of the severe tenesmus excited. The contact of the catheter with the wall of the bladder caused hemorrhage. Five grains of saccharin were administered, three times a day; on the following day the urine was neutral, and in four days more it was acid, and contained no mucus and but very little pus. Ten days later the urine was entirely normal, the symptoms had disappeared completely, and the patient was discharged cured.

It is probable that a part of the efficacy of saccharin in these cases is due to its being a powerful antiseptic, in addition to its acid property.—*Medical Record*, November 16, 1889.

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#### SOME OF THE RECENT APPLICATIONS OF MENTHOL.

The most familiar employment of this camphor is as a local application for the relief of pain, and menthol cones are prepared and sold in the shops for this purpose. The relief obtained by such applications is usually but temporary, yet in some of the milder forms of facial neuralgia and so-called rheumatic pains the remedy is of real service. In pruritus, also, the analgesic properties of the drug have been turned to good account. It is employed for this purpose in ointment, spirit, or liniment, in the strength of from one part in twenty to one part in ten. A very good preparation for this purpose is that recommended by Eloy, of a solution of fifteen grains of menthol in one ounce of forty per cent. alcohol.

Still another use for the remedy, as externally applied, is in the treatment of furunculosis, and more especially of furunculosis of the external auditory canal. Here the bactericidal properties of the drug, as well as its analgesic action, come into play. DR. CHOLEWA has made trial of menthol in these

cases, and commends it most highly. He applies it by means of a pledget of cotton moistened with a twenty per cent. solution, and inserted into the canal. The application is said to cause a little smarting at first, but this is soon succeeded by entire relief of pain, and a speedy subsidence of the inflammatory process.

Ringworm of the scalp is said by MR. MALCOLM MORRIS to yield more promptly to applications of menthol than to any of the ordinary remedies employed for this purpose. One part of menthol, four of chloroform, and twelve of olive oil is the formula recommended in such cases. In the treatment of various affections of the upper air-passages, also, good results have been obtained in local applications of menthol in the form of solution, vapor, or spray. Decided improvement has followed its use in cases of laryngeal phthisis.

For nasal and pharyngeal catarrh much benefit is often derived from sprays of menthol dissolved in oil or fluid vaseline, in the strength of from one to twenty or thirty per cent. In hay fever WILLIAM HILL, of London, has found menthol to serve an excellent purpose as a substitute for cocaine. He applies a ten or twenty per cent. solution in olive or almond oil to the sensitive area within the nose by means of a brush or atomizer. In the chronic bronchitis of old age, Nyes speaks favorably of inhalations of menthol, which, he says, not only facilitate and rapidly diminish the expectoration, but also allay the cough and reduce the number of paroxysms. These inhalations have also been used with good effect in whooping-cough. Finally, the same mode of application has proved useful in Jores's hands in relieving asthma. Inhalations of a twenty per cent. solution in olive oil were then tried, with the most satisfactory results—the rattling râles disappeared almost immediately, and the respiration soon became normal.

Menthol has not yet been employed to any extent internally, although it is said to act efficiently when so given in controlling certain painful affections. The dose for internal administration is from fifteen to sixty grains per day.

If the effects obtained should be found to be uniformly produced, we might well be justified in placing menthol among the most valuable of the minor therapeutic agents.—*Medical Record*, November 23, 1889.

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#### ACTION OF THALLIN.

M. ALBERT ROBIN has made a careful study of the physiological action of thallin, especially in regard to its effects upon the chief constituents of the urine. The tests were made upon healthy men, between sixty-one and sixty-eight years old, and the dose of thallin given was, as a rule, fifteen grains, though at times as much as forty-five grains were administered.

It was found that this drug diminishes the total amount of excretion; the organic constituents are lessened to a greater extent than the inorganic, except that the elimination of phosphoric acid and of compounds of sulphur and potassium is increased. The destruction of tissues rich in sulphur seems to continue after the thallin is discontinued.

From such observations he infers that thallin acts as a poison to the nervous system, the red blood-corpuscles and organic tissues rich in sulphur and phos-

phorus. Its antipyretic properties are believed not to depend upon any direct antiseptic action, but to be the consequence of a toxic action on the red blood-corpuscles and on the nervous system. Consequently, thallin ought not to be prescribed in fevers, as it is a dangerous antipyretic. In a word, the inference from these experiments is that thallin should not be used—this study of its effects upon nutrition suggests only contra-indications.—*Archives de Physiologie*, October, 1889.

#### TREATMENT OF CHRONIC CYSTITIS.

PROF. V. MOSETIG-MOORHOF recommends half a drachm of the following emulsion injected into the bladder, after previous cleansing, in a pint of water:

R.—Iodoform . . . . .	3xiiij.
Glycerin . . . . .	3x.
Distilled water . . . . .	3iiss.
Gum tragacanth . . . . .	grs. iv.—M.

The injection should be made on every third day. After three or four injections the catarrhal inflammation is much or wholly relieved.—*Therapeutische Monatshefte*, October, 1889.

#### NOCTURNAL INCONTINENCE OF URINE.

A combination of bromide of potassium and tincture of belladonna is recommended as superior to either of these agents alone. Before retiring, ten grains of the bromide should be taken, and at the same time from ten to twenty drops of the tincture of belladonna.—*Therapeutische Monatshefte*, October, 1889.

#### NAPHTHALIN AND CATARACT.

DR. KOLINSKI, writing in von Graefe's *Archiv*, vol. xxv. 2, points out that naphthalin, which is coming a good deal into use from the effect it seems to have on the microorganisms existing in the intestines in some cases of diarrhœa, possesses also the property of producing changes in the nutritive power of the blood, thus being liable to set up degeneration of the bloodvessels. As the eye is one of the most highly vascular organs, it is one of the first to show any of the changes induced by interference with the nutritive property of the blood. Naphthalin is said first to cause small extravasations in the choroid and in the ciliary body, then ecchymoses and white patches in the retina, and, finally, cloudiness in the lens and crystals in the vitreous.—*Lancet*, November 16, 1889.

#### INCOMPATIBILITY OF ANTIPYRIN AND CHLORAL.

M. BLAINVILLE, a pharmacist of Paris, was called upon to put up a prescription containing sixty grains of antipyrin and seventy-five grains of chloral in half an ounce of water. An oily precipitate was immediately thrown down which resembled neither chloral nor antipyrin in taste, but recalled somewhat that of coriander-seed.

A mixture of antipyrin and quinine is also incompatible, both substances being at once precipitated from the solution.—*Medical Record*, November 23, 1889.



MEDICINE.

UNDER THE CHARGE OF

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NAPHTHOL AS AN ANTISEPTIC IN TYPHOID FEVER IN CHILDREN.

ELOY (*Gaz. Heb. de Méd. et de Chir.*, 1889, No. 40, 643) says that in imitation of the method of Bouchard we may, as Legroux has done, prescribe naphthol in typhoid fever in children. After the disease is established, 5 to 10 grains of calomel, divided into two doses, should be given. Two days later begin the administration of naphthol in the following manner: If diarrhœa of moderate degree is present, give every hour 3 grains of  $\beta$ -naphthol alone. If diarrhœa is profuse, give 6 grains of a mixture of equal parts of  $\beta$ -naphthol and salicylate of bismuth. Ten of these doses are to be taken in twenty-four hours. If, on the other hand, there is constipation, the bismuth should be substituted in the same amount by salicylate of magnesia, and the mixture administered in the same manner and dose.

THE TREATMENT OF TYPHOID FEVER WITH COLD BATHS.

JOSIAS (*L'Union Médicale*, 1889, No. 137, 691) reports thirty-six cases of typhoid fever treated with cold baths, administered systematically every three hours, if the temperature reached 102.2° F. But one death occurred, and this was a patient *in extremis* when the treatment was instituted. Twenty-seven of the cases were benign but hyperpyretic, and the remainder grave. Neither intestinal hemorrhage, the presence of menstruation, nor the evidences of pneumonia or of renal affection, were allowed to interfere with the treatment. One of the advantages is the excessive diuresis produced; perhaps a consequence of the great thirst, which allows of the administration of large amounts of liquid nourishment (four to five quarts daily). As a result of this hyperalimentation the duration of the malady is less, and the forces are better preserved. The author believes that the method occasions abundant diarrhœa, which he considers an advantage, on account of its cleansing effect on the intestine.

ANTISEPSIS WITH RESORCIN IN THE TREATMENT OF DIPHThERIA,  
PULMONARY TUBERCULOSIS, PERTUSSIS, AND SOFT CHANCER.

After a long article on this subject, with reports of cases, A. LEBLOND (*Journ. de Méd. de Paris*, 1889, No. 39, 578) closes with a *résumé* of his results and conclusions:

I. *Diphtheria*.—If the treatment is applied from the outset the extension of

the plaques is very limited, and the larynx seldom becomes involved. If the glands are already swollen and the plaques in the pharynx abundant, the treatment will in forty-eight hours remove the swelling, and almost always arrest the production of membrane. In all the cases reported the general condition remained good, and the appetite and spirits were preserved; showing that a general intoxication by the disease had been avoided. When the larynx was invaded from the outset treatment was less efficacious. Still the use of resorcin by fumigation and atomization gave good results when the trachea was large enough to prevent asphyxia from coming on very rapidly, or when tracheotomy was possible.

II. *Pertussis*.—After a dozen days in which the treatment is employed, the number of paroxysms is reduced to four or five in twenty-four hours. Some of the symptoms now disappear but slowly, which is to be explained on the ground that they are due to the nervous irritation remaining, though the parasitic principle has been destroyed.

III. *Tuberculosis*.—The action of resorcin only became evident in the sub-acute forms of the disease. Usually after fifteen days the general condition improved, the sweats lessened, and the fever diminished. The local condition showed a diminution of the râles, an increase of the vital capacity, and the progress of cicatrization of the ulcerated surface. By continuing the treatment after these results had been obtained, the author was able to maintain his patients in a satisfactory state; some for two years, others for five or six years. In the treatment of acute phthisis, or in advanced cases, resorcin only produced temporary benefit.

IV. *Soft Chancre*.—In this the author has sometimes obtained a cure in twenty to twenty-five days, thus gaining two weeks on cases treated by other methods, and especially by iodoform.

As regards the method in which resorcin should be employed, the author gives the following *résumé*:

I. *Diphtheria*.—Treatment is local, consisting of the painting of the pharynx with a solution of three parts of resorcin in thirty parts of glycerin. This procedure should be repeated every hour at least, night and day. The child should be wakened if asleep, and sufficient force employed to allow of the brush coming thoroughly in contact with all the diseased surface. Atomization of a solution of one part resorcin and fifty of distilled water, may also be made continuously in the room with a Lister spray apparatus.

II. and III. *Pertussis and Tuberculosis*.—Fumigations of powdered resorcin are to be used, made by heating the drug in a small metallic vessel provided with an alcohol lamp. Fifteen grains of resorcin usually suffice for each fumigation. In pertussis fumigation should be made every two hours, day and night, and this continued for twenty days. In tuberculosis the fumigations should be increased to such a degree that the patient actually lives in an antiseptic atmosphere. This method has met with great success. In practice, however, we must content ourselves with four or five fumigations during the day, though during the night they can be made almost continuous. The patient should also take internally two or three tablespoonfuls daily of a solution of two and a half drachms of resorcin in sixteen ounces of syrup of turpentine.

IV. *Soft Chancre*.—The drug should be applied in powder directly to the ulcer for five or six days, after which any indifferent treatment may be employed.

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THE TREATMENT OF CHOREA BY ANTIPYRINE.

MONCORVO (*Rev. Gén. de Clin. et de Therap.*, 1889, No. 36, 576) published in 1888 his favorable experience with antipyrine in two cases of chorea in children, and now reports his trial of it in four new patients. In three of them other means had been used without avail, and in one of the three the disease had lasted over three years. Full doses of antipyrine were given—seventy-five to ninety grains daily, at the age of ten to fourteen years—and the effects were excellent and prompt. At the same time the general health and strength improved.

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APHASIA TREATED BY TREPHINING.

MOUISSET (*Lyons Méd.*, October 6, 1889, 204) exhibited before the Société des Sciences Médicales de Lyons a patient who had suffered from epileptic attacks for five years, and who, as a result of a fall during one of them, had suffered from prolonged loss of consciousness, followed by persistent aphasia, paresis of the right arm, slight paralysis of the facial and hypoglossal nerves of the same side, and attacks of Jacksonian epilepsy. The symptoms indicated a peripheral lesion, and the exact localization of it. Trephining revealed the existence of a hæmatoma of the dura mater, and permitted the blood to be cleaned out. On the next day the tampon was removed from the wound, and the patient spoke some words distinctly—the first time since his fall. Recovery went on rapidly, and the aphasia disappeared in about eighteen days.

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SUSPENSION IN LOCOMOTOR ATAXIA.

At the Thirteenth Congress of the Italian Medical Association, held at Padua from the 22d to the 27th of September, DR. G. BIANCHETTI related his experience with the suspension treatment in tabes dorsalis and other nervous diseases.

Eight ataxic patients, of whom six were men and two women, were treated by suspension alone. In three of these cases the treatment had to be discontinued, owing to the fact that it produced amaurosis, in two of them after five, and in the other after seven suspensions, none of which exceeded two minutes. Visual power was distinctly impaired after each treatment. In four of the remaining five cases, on the other hand, "marvellous results" were obtained. The number of suspensions varied from twenty to fifty-two. Lightning pains, gastric and vesical crises, motor incoördination, and impotence, all disappeared, and the patients gained in weight from three to eight pounds. The vertebral column was carefully measured during the suspension, and was found to be lengthened from one to one and three-fifths inches. Dr. Bianchetti also tried this treatment in some cases of spastic paralysis, paralysis agitans, impotence caused by masturbation, and incipient progressive paralysis, but without any effect.

DR. MARINA gave the results of his experience in twenty-one cases of tabes, besides a few of paralysis agitans, etc. In one-half of the ataxic cases sus-

pension was followed by marked relief of the symptoms, but in the remainder the pains were made worse. He confirmed Dr. Bianchetti's observation as to the bad effect produced by suspension on the optic nerve. In one of his cases, on the other hand, it seemed to have a good effect on the auditory nerve. Dr. Marina noticed that better effects were produced by suspension in persons of small stature and light weight. It is interesting to note that in one of Dr. Marina's cases, after fifty suspensions, the knee-jerk could, after five or six taps, be induced more violently than in the normal state, although before the treatment it was quite inert. In the non-tabetic cases this method had no effect whatever. It may be added that a case of locomotor ataxia in which death was caused by suspension was not long ago reported in an Italian medical journal.—*British Medical Journal*, October 26, 1889, 938.

EULENBURG and MENDEL (quoted in *Centralbl. f. d. ges. Ther.*, October, 1889, 606) report the results obtained by them with the suspension treatment. Their observations were made upon forty cases, and extended over three months. The total number of suspensions equalled 975, or an average of 24.375 for each person. The suspensions were made, as a rule, only three times a week, though in some suitable cases, who had become accustomed to it, they were made daily, and without any bad results. The duration of the suspension was from one to three minutes. Only exceptionally did it reach four minutes, though in some susceptible cases it lasted but from one-half to three-quarters of a minute. Thirty-four of the patients were cases of tabes. Five of these soon abandoned the treatment, and of the remainder a few were decidedly improved by it, some were benefited only moderately, and eleven showed no improvement at all. The improvement appeared to have only a symptomatic character, and affected very unequally a group of prominent and even cardinal symptoms, whereas certain appearances which might be called pathognomonic (Westphal's symptom, myosis and Argyle-Robertson pupil) were in no case at all influenced by suspension, no matter how persistently employed.

Apart from temporary effects seen after each suspension, and of which no account is taken here, improvement was most frequently observed in the power to sleep and in the general condition. After this Romberg's symptom and the affection of the bladder were oftenest influenced. An improvement in the neuralgic symptoms took place in ten cases, of locomotion in nine cases, of paræsthesia in five cases, and of hyperæsthesia and anæsthesia in three cases.

In several patients in whom it was necessary to omit the treatment for a time, the good results which had been gained were observed to disappear.

The treatment was also tried in one case of disseminated sclerosis, one of chronic myelitis, one of traumatic neurosis, and three of paralysis agitans (one of which did not remain under treatment). In the first there was evident improvement, and in one case of paralysis agitans the result was possibly favorable. In the others no good results were obtained. The authors conclude that the method of treatment by suspension is not altogether valueless, but that at the same time it is not apt to fulfil any extended expectations.

MOUISSET (*Lyon Méd.*, August 11, 1889) says that this treatment should be employed in ataxia in such a way as not to cause fatigue. To accomplish this, the patient should be elevated slowly and steadily. If he is unable to

walk, the apparatus should be applied while he is sitting, and he then should be assisted to an erect position before suspension is commenced. The duration of the suspensions should be from thirty to sixty seconds at first, and this may be later increased to five minutes. The heavier the patient the shorter time should the suspension continue. Eight cases of locomotor ataxia were treated after this method. One of these was suspended only three times. In another case, well advanced in the disease, tingling in the lower limbs, giddiness, and disturbance of hearing and sight were experienced during the suspension, but ceased as soon as the patient was let down. In the six remaining cases there was evident improvement in the sensory and motor disturbances.

#### TREATMENT OF WHOOPING-COUGH WITH RESORCIN.

ANDEER (*Centralbl. f. d. med. Wissensch.*, No. 40, 1889), having already published his favorable experience with resorcin in whooping-cough, adds other instances of the beneficial action of the drug in this disease. A girl of seven years had suffered for eight days from the catarrhal form of whooping-cough, with sleep greatly disturbed by frequent paroxysms. Change of house and of climate had been of no avail. She was then given a two per cent. aqueous solution of resorcin, of which a half-wineglassful was to be partly swallowed, partly used as a gargle, four times daily. On the second day of the treatment the number of the paroxysms diminished greatly, and the nights were scarcely disturbed at all; and in eight or ten days all cough had disappeared. In two other cases, resorcin used in this way stopped the whooping-cough within four days, and in three others within a week. Finally, an infant, about six months old, in whom all the other methods of treatment which had been employed had proved useless, was given a 0.5 per cent. solution of resorcin, together with sugar; the child being made to suck it out of its bottle. Vomiting had been frequent, following every paroxysm of coughing, but ceased after the second administration of the remedy, and the cough, too, disappeared by the fifth day.

#### NON-TUBERCULAR AND NON-CARDIAC HÆMOPTYSES IN ELDERLY PERSONS.

SIR ANDREW CLARK (*British Medical Journal*, October 26, 1889) says that, at one time believing that every case of pulmonary hemorrhage was due to pulmonary tuberculosis, or malignant growth, or to aneurism or disease of the heart, a case was finally brought to his notice which not only convinced him of the error of this view, but revealed a distinct cause for pulmonary hemorrhage. This patient was a man, of about fifty to sixty years of age, suffering from moderate progressive osteo-arthritis and subacute bronchitis with some emphysema. The heart and bloodvessels appeared sound. Very soon he began to cough up blood in small quantities at short intervals, and, in spite of all treatment, died from hemorrhage within a week. The autopsy revealed isolated patches of emphysema surrounded by hemorrhagic extravasations in the back and lower part of both lungs. Nowhere could there be discovered the slightest evidence of structural change, which would have accounted for the hemorrhage. A microscopical examination showed that the seat of the bleeding was in the immediate neighborhood of the patches of emphysema, and that the minute terminal arteries in these localities were

always diseased. There seemed to be a causal relation between the emphysema, the hemorrhage, and the condition of the bloodvessels. The author was led to conclude that the initial change had been some minute structural alteration in a terminal branch of the pulmonary or bronchial artery; that in consequence there had been a more or less complete obstruction to the blood-supply of the territory involved; following this there had arisen degeneration of the capillaries and venous radicles, determining a true atrophic emphysema; that the impairment of the vessel walls had brought about the hemorrhage which ended in death. The structural changes in the affected bloodvessels were limited to nuclear proliferation in the middle coat, and an amorphous and hyaline infiltration of it and the intima. As the patient had for years been a well-marked arthritic, and as the lesions described were akin to those which are found in the diseased articulations, the author concluded that the affection was of an arthritic nature, and might be called "arthritic hæmoptysis."

Some years ago he had under observation a very similar case, in which fatal hæmoptysis occurred in the person of a typically arthritic man, and in whom the autopsy revealed a condition practically identical with that described in the first patient. In the last fourteen years he has seen about twenty cases of hæmoptysis of this kind, some of which he details, occurring in persons over fifty years of age. He draws the following conclusions regarding the affection and its treatment:

1. There occurs in elderly persons, free from ordinary diseases of the heart and lungs, a form of hæmoptysis arising out of simple structural alterations in the terminal bloodvessels of the lung.

2. These vascular alterations occur in persons of the arthritic diathesis, resemble the vascular changes found in osteo-arthritic articulations, and are themselves of an arthritic nature.

3. Although sometimes leading to a fatal issue, this variety of hæmoptysis usually subsides without the supervention of any coarse anatomical lesion of the heart or of the lungs.

4. This variety of hemorrhage, when present, is aggravated or maintained by the frequent administration of large doses of strong astringents, by the application of icebags to the chest, and by the restricted indulgence in liquids to allay the thirst which the astringents create.

5. The treatment which appears, at present, to be the most successful in this variety of hæmoptysis, consists in diet and quiet; in the restricted use of liquids, and the stilling of cough; in calomel and salines; in the use of alkalis with iodide of potassium; and in frequently renewed counter-irritation.

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#### PREVENTION OF TUBERCULOSIS.

HELLER (*Münch. med. Wochenschrift*, 1889, No. 43, 742), in a valuable article on this subject, recommends that the title "consumption" be replaced by the word "tuberculosis," since the former applies as well to some other conditions, and does not describe the usual evidences of tuberculosis in children. He calculates that almost one-seventh of the population die of the disease; that a patient with tuberculosis pulmonum may expectorate about 7200 million of bacilli in a day; that the great influence attributed to in-

heritance in the production of the disease is an entire mistake; and that the affection is essentially an infectious one. He states his arguments in proof of this; and dwells also on the danger threatening from the frequency of the disease in cattle and the presence of the bacilli in their milk. As the tubercle bacilli in the sputum only become generally disseminated when dried, it is of the utmost importance to guard in every possible way against this drying and distribution. After making numerous suggestions as to the manner in which this disinfection in public and private places is to be carried out, the author sums up the substance of his paper as follows:

1. Tuberculosis is the most important of diseases in relation to political economy, both on account of its high rate of mortality, the great loss entailed by the long duration of the disease, and the great danger to others from infection.

2. The chief sources of the development of tuberculosis are the expectoration of tuberculous patients and the milk of tuberculous animals.

3. The measures to be carried out against it, are: (a) compulsory reporting and disinfection in all fatal cases of tuberculosis; (b) compulsory reporting of cases of bovine tuberculosis, and veterinary supervision and disinfection of the stables; (c) precautionary measures for rendering the sputum harmless in all public—and, as far as possible, private—buildings in which persons mingle with each other; especially schools, business establishments, prisons, hospitals, etc.

In this connection, VILLEMIN's report on behalf of the Committee appointed by the Paris Congress for Tuberculosis is of interest (*Gaz. Hebdom. de Méd.*, 1889, No. 44, 713). The general conclusions were that tuberculosis has the largest death-rate of all diseases, killing one-fourth to one-seventh of the population of large cities. That it is an infectious, parasitic disease, caused by a microbe, but that it is transmissible to healthy individuals only under certain conditions. It may enter the system by the respiratory passages, or the digestive tract, and by the skin and mucous membranes if there be a solution of their continuity. The sputum of consumptive patients is the most frequent source of contagion, but it is almost ineffective while in the liquid state. The contagious principle is also found in the feces.

It is necessary, therefore, to use the greatest precaution in regard to the sputum of consumptives, which should be deposited only in spit-cups, and these should always contain a certain quantity of liquid. All public and private places of meeting should be provided with spittoons. Linen soiled by the dejections of consumptive patients, should not be allowed to dry, and should be boiled before sending it away for washing. Sleeping in the room with a consumptive should be avoided. All rooms in hotels, etc., where such persons may take lodging, should be so arranged that thorough disinfection can be easily practised, and all articles with which the patients have had anything to do should never be used by others until disinfected by steam, under pressure, boiling, sulphur vapor, or coating with lime.

The bacillus may also be found in the flesh, blood, and milk of animals used for food. Particular attention should be given to the milk, since we know least about the source from which we obtain it. A tuberculous mother should not nurse her infant, which should be committed to a healthy wet-nurse living in the country. If cow's milk must be used, it should always be

boiled; but asses' and goats' milk unboiled is far less dangerous. The meat from tuberculous animals must be prohibited, and blood should never be drunk at slaughter-houses.

There are certain persons specially predisposed to contracting tuberculosis, and these should take special precautions. These persons are: Those born of tuberculous parents, or belonging to families in which there have been a number of tuberculous patients; those debilitated by excesses or privations; those suffering or recovering from measles, pertussis, variola, and, above all, diabetes.

#### THE CURABILITY AND TREATMENT OF CIRRHOSIS OF THE LIVER.

HUCHARD (*Rev. Gén. de Clin. et de Thér.*, 1889, No. 40, 649) says that the belief is now general in the curability of many cases of hepatic cirrhosis under the employment of the iodides and a milk diet, but that there is a difference of opinion as to what forms of cirrhosis are curable. Marini has recently maintained that the classic cirrhosis of Laennec, the small, hard, and contracted liver, is not curable, and that only the hypertrophic form is amenable to treatment, and this only when treatment is commenced early. On the other hand, Lancereaux affirms that the ordinary alcoholic cirrhosis, the atrophic form, is almost always improved, if not cured, by the iodides and a milk diet; while the form attended by enlargement of the liver yields less easily to treatment, and that accompanied by icterus is still more obstinate.

The experience of Huchard is that atrophic cirrhosis is curable, especially in the early hypertrophic stage, while the form which is primarily and constantly hypertrophic, whether with or without icterus, is less easily influenced.

The treatment is complicated and ought to be carried out with precision. In the first place, iodide of potash or of soda, in doses of 8 to 15 or 30 grains daily, should be given from the beginning. In cases which extend over a long time, it is better to use the soda salt, as being more assimilable and less dangerous. Calomel may be given in conjunction with the iodides. It is best prescribed about every fifteen days, four powders, each of 3 grains. In this way the calomel acts not only as an alterative, but as a diuretic; and it is very important in this disease that diuretics be given. When thus administered the dangers of stomatitis are not so great.

As regards aspiration of the fluid in the abdomen, the author insists that most physicians do this too late, and that to remove a large quantity is actually to produce a serous hemorrhage, by which the patient may be greatly, or even dangerously enfeebled. Every case of ascites should be aspirated early, and if the effusion be large, not all the fluid should be removed at one time. After the aspiration a purgative should be given and the employment of diuretics insisted on, since they act much more effectively after the ascites has been removed.

To influence the hepatic lesion revulsives are to be employed in the region of the liver—such as cupping, blisters, cauterization, etc. Hydrotherapy in the form of the Scotch douche in the hepatic region can also be used.

Of all treatment the milk diet is the most important. Two and a half or three quarts of unboiled or slightly warmed milk should be taken during the day in divided doses about two hours apart. Fifteen or twenty minutes



should be occupied in swallowing in small mouthfuls a cup of milk, in order to prevent the formation of a large curd in the stomach. If it produces constipation small doses of rhubarb, magnesia, or sulphur may be given. If, on the other hand, it causes diarrhœa, or is not well borne by the stomach, one-half tablespoonful of hot water may be added, or one-half tablespoonful of Vichy from one of the cold springs. If this does not correct the difficulty, powders of 3 grains each of pepsin, pancreatin, and bicarbonate of soda may be taken at times after a glass of milk. To make the milk acceptable to the patient in cases where there is a dislike to it, it may be flavored in various way. Under the influence of this combined treatment improvement will, in favorable cases, begin to show itself within twenty or thirty days.

*Am. Jour. Med. Sci.*  
COCAINE IN DIABETES.

THOMAS OLIVER (*Lancet*, October 12, 1889, 735) remarks on the frequent disappearance of glycosuria on the development of some illness attended by febrile exacerbations. Thus toward the termination of diabetes, when phthisis has become well established, we frequently notice that sugar disappears from the urine when the temperature becomes high. A high temperature, then, or rather the condition which causes the temperature to become high, is seen to be followed by a disturbance of the glycogenic function of the liver. From observation of these facts it would seem that the employment of medicines of the pyrogenic class might be followed by good results in the treatment of diabetes. The author, therefore, tried cocaine in quarter-grain doses three times a day in a case of this disease, with excellent results. There occurred, namely, a total disappearance of a most obstinate constipation which had refused to yield to the strongest purgatives; disappearance of a gait not unlike that of ataxia; of delusions, and of a sense of muscular fatigue; the return of a feeling of improved health and strength, with a gain in weight; a marked diminution in the amount of urine excreted; a very decided reduction in its specific gravity and a very noticeable fall in the daily elimination of sugar. Cocaine failed, however, to raise the temperature. The administration of the drug was stopped at one time, with an immediate and great increase in the amount of urine and of sugar excreted.

Unfortunately the patient, when everything seemed to be doing well, took cold and developed phthisis, from which he died.

#### ENEMATA OF CREOLIN IN DYSENTERY.

OSSOWSKY (*Gaz. Hebdom. de Méd. et de Chir.*, 1889, No. 40, 649, from *Vratch*, 1889, No. 44) has employed creolin in 16 cases of dysentery in soldiers. The treatment consisted in the injection of a 0.5 per cent. solution, administered two to four times a day through a long rubber tube. In 9 cases the bloody stools ceased by the third day, and in 4 cases by the fifth to the seventh day; and in the 4 (?) last remaining cases the cessation was immediate. The author considers the disinfecting power of creolin considerable, while it is less toxic than carbolic acid or sublimate. Its administration not only removes the blood from the passages, but relieves the other symptoms, including the tenesmus. Then, too, it prevents the catarrh of the large intestine, and may

be followed, if desired, by injections of a 0.5 per cent. solution of acetate of lead, or 1 to 2 per cent. solution of tannic acid. Kolokoff has also obtained results by this method of treatment confirmatory of those of Ossowsky. Both observers lay great stress on the proper position of the patient. He should, namely, be standing with the trunk bent forward, and the hands supported on the bed.

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## SURGERY.

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UNDER THE CHARGE OF

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### THE LATEST LISTERIAN METHOD IN THE DRESSING OF WOUNDS.

SIR JOSEPH LISTER has lately published a full account of the antiseptic method now employed by him, with his reasons therefor.

In the old Listerian method carbolic acid was the antiseptic employed, but this had the objection of volatility as well as of great slowness of action as a germicide. Corrosive sublimate, which succeeded it, was stable and acted with rapidity, but was exceedingly irritating, and, in addition, was precipitated by the albumen contained in the serum of the blood. This precipitate, it was discovered by Sir Joseph Lister, possessed powerful antiseptic properties with much less power of producing irritation; and he therefore devised a form of antiseptic dressing which he called "the sero-sublimate gauze," which consisted of gauze charged with a solution of corrosive sublimate in the serum of the blood. This, however, was difficult to manufacture and produced a harsh and non-absorbent material which was mechanically objectionable. It was succeeded, in his hands, by the combination of chloride of ammonium and bichloride of mercury, known as sal-alembroth; which, while much less irritating, was so exceedingly soluble in the blood serum that whenever the discharges from wounds were copious, it was washed out of the dressings, leaving them without antiseptic property. For these reasons Lister in time discarded this material and employed for a considerable period a gauze containing three or four per cent., by weight, of the biniodide of mercury. This was less soluble, non-volatile, powerfully antiseptic, but, again, extremely irritating, so that the least contact with the skin produced an intense erythema, even going on to vesication.

Lister was thus led to look further for the ideal antiseptic, and he has now found it, he believes, in a double cyanide of zinc and mercury. In the *British Medical Journal* of November 9, 1889, the various facts are set forth at length by Lister; and his paper, besides being an important scientific contribution, supplies interesting evidence of the remarkable patience, perseverance, and attention to detail which have invariably characterized the work of this

eminent surgeon. In a clinical lecture delivered November 20th, Dr. J. William White reported (*Medical News*, November 30, 1889) very favorable results from the use of this material, which he has been able, through the kindness of Sir Joseph Lister, to employ for some months in his private work and which he has just introduced into his service at the University and Philadelphia Hospitals.

Its most evident advantages may be briefly enumerated as follows :

In the first place, it is non-volatile ; next, it is almost entirely un-irritating ; thirdly, it is insoluble in water, and only soluble in 3000 parts of blood serum ; and, finally, while it possesses but little germicidal value, its inhibitory power is so high that a solution of 1 : 1200 is sufficient to keep animal fluids permanently free from putrefaction. This combination of qualities is possessed by none other of the antiseptics which have been used ; and its deficiency in germicidal power is easily remedied by including in the manufacture of the gauze dressings which are impregnated with this material, a small percentage (1 in 4000) of sublimate, enough to be germicidal, but too weak to be markedly irritating.

The gauze comes in pieces of six yards each, and according to the method explained to White by Lister, should be prepared as follows, the proportions being those required for the impregnation of twenty pieces of gauze, each of that length : A mixture of the zinc and mercury salt and of water is made in the proportion of 800 grains of the former to 28 pints of the latter. The gauze is drawn through this mixture slowly, the apparatus used by Lister consisting of a wooden trough in the shape of an inverted pyramid with a bar a short distance from the bottom, under which the gauze must pass, in that way securing its complete submergence. As it is drawn through it is pressed slightly against the edge of the trough, so as to squeeze out the excess of liquid, and is then dipped in a bath composed of starch 400 grains, boiling water 3 pints, mixed together, diluted by the addition of 11 pints of cold water, and still further by adding 15 pints of a 1 to 2000 sublimate solution. The reason for this last or starch bath is that the double cyanide, if allowed to dry in the gauze without the admixture of starch, will fly out as an impalpable powder whenever the gauze is handled, whereas with the starch it makes a mixture which, while not a chemical compound, seems to be a very intimate association of the cyanide with the starch, the latter holding it in the meshes of the gauze. The bichloride is added for the sake of its germicidal action. The gauze, when taken out of this bath, is laid for a few moments between the folds of a perfectly clean sheet which absorbs the excessive moisture, and is then folded and ready for immediate use. Or it may be dried and used after moistening with the 1 to 4000 sublimate solution.

Another method which is recommended by Lister will probably prove still more simple. A strong solution of starch is mixed with the double cyanide powder, and after this a quantity of the sulphate of potash, which is inert, and is used in this connection just as it is used in Dover's powder, for the sake of the mechanical effect produced by its gritty particles.

Take, for example, if it is desired to impregnate twenty pieces of gauze, each six yards in length, eight hundred grains of the double cyanide. Stir it into a strong solution of starch made with warm water until it is almost pasty in consistence. Add two or three tablespoonfuls of sulphate of potash,

allow the mixture to dry; powder and diffuse it in a 1 : 4000 solution of bichloride, enough being employed to permit of the thorough immersion of all the gauze.

The excess of sulphate of potash is practically gotten rid of in this watery solution, but if it were not it would do no harm, as it is inert. The gauze should then be carefully drawn through this mixture, which is stirred up, the material is deposited in the meshes, and should be dried between a folded sheet if it is needed for immediate use, or over a line in a clean room free from dust. If the latter plan is adopted, it should be moistened again with 1 : 4000 bichloride just before using.

The dressing of a wound, according to the present Listerian method, would then consist in the application immediately over the line of the wound of from six to eight layers of this gauze, out of which the bichloride has been washed by wringing it out once or twice in a solution of 1 to 20 carbolic acid. This leaves the gauze impregnated merely with the absolutely unirritating cyanide; the carbolic acid disappearing by reason of its volatility. Above this are placed successive layers of the moist gauze, and outside of this, if it is necessary to use still other dressing for purposes of pressure or otherwise the ordinary absorbent, bichloride cotton, may be employed.

We have, then, a dressing which would seem to combine all the essentials of a perfect antiseptic, and it is to be hoped that the results obtained from the use of this material will be those which, on *a priori* grounds, we have a right to anticipate.

#### THE TREATMENT OF TUBERCULOUS DISEASE OF THE BONES AND JOINTS BY PARENCHYMATOUS INJECTIONS OF IODOFORM OIL.

PROF. TRENDELENBURG, toward the end of last year (*Münchener medizinische Wochenschrift*, October 1, 1889), was led by a communication of Dr. Heusner to try iodoform injections in several cases of tuberculous bone and joint disease, and his results were so satisfactory that he has since then employed the same method in a large number of cases. A 5 per cent. ethereal solution of iodoform was used at first, but as it gave rise to great pain and sometimes to sloughing, iodoform oil, 5 to 25, was substituted. It should be freshly prepared just before using. 30 to 50 minims are injected every eight days into the diseased tissues, after careful disinfection of the skin. If abscesses have already formed, they are first emptied and then injected. If fistulæ are present, it is found that injections into the fistulæ themselves are less effective than when they are made into the surrounding tissues. A sublimate dressing is applied after each injection. In injecting into fungous masses and into the tissues around fistulæ, considerable force must be used, which, however, seems to diffuse the iodoform the more widely.

In some cases the beneficial effects of the injections are observed after three or four treatments, in others not until many more have been employed. Pain usually disappears early. In favorable cases the swelling disappears, the abscesses diminish in size and number. The fistulæ are obstinate, and entire healing occurs in them only after long treatment. Movement in diseased joints is partly reëstablished. In other cases a less degree of improvement is obtained, and in others operation becomes necessary, but even these seem

benefited by this preparatory treatment. There were no cases of iodoform poisoning. It seems wise to sterilize the oil used. Control experiments with Peruvian balsam show the superiority of the iodoform oil. Of 109 cases treated in this way, 28 required other operative interference; 36 seemed to be cured; 37 were improved; 12 were not cured; 24 are still under treatment, of whom 14 show considerable improvement.

#### TREATMENT OF SMALL CYSTIC TUMORS BY INJECTION OF CHLORIDE OF ZINC.

DR. A. LANDERER (*Deutsche Zeitschrift für Chirurgie*, Bd. 29, Hefte 5 und 6, 1889) has for about a year, in the treatment of small cystic tumors, such as hygromata, ganglions, ranula, etc., injected a 1 per cent. solution of chloride of zinc, employing from 25 to 35 minims, according to the size of the growth. He does not use any preliminary cocaine injection. Occasionally the injection must be repeated, especially if a sufficient quantity is not used on the first occasion. The resulting symptoms are scarcely noticeable. There is little or no pain. The cyst becomes hard, and is surrounded by a dense œdema, which disappears after a few days. A Priessnitz dressing (hydro-pathic compress) is agreeable to most patients. During the next four or five weeks the cyst shrinks, and finally disappears entirely.

Landerer has treated in this way 5 ganglions of the dorsum of the hand; a diverticulum of the sheath of the flexor tendon of the fourth finger; 3 cases of housemaid's knee; 6 cases of accessory bursæ in hallux valgus; 1 case of hydrocele in a child of six weeks; 1 case of ranula. He thinks this method the easiest, surest, and most harmless one.

#### GUNSHOT WOUNDS OF THE ABDOMEN.

DR. LEWIS A. STIMSON, after an interesting and elaborate consideration of the general questions involved in abdominal gunshot wounds, and especially in intestinal wounds, offers (*The New York Medical Journal*, October 26 and November 2, 1889) the following summary of the most important points of his paper:

The (incomplete) hospital statistics of New York City show, for an average period of ten or twelve years previous to 1886, 17 cases of recovery under non-operative treatment after gunshot wound of the abdomen supposed to be perforating. The integral statistics of three hospitals—the New York, Chambers Street, and Roosevelt—contain 23 cases, with 15 deaths—a mortality of 65 per cent. The integral statistics of New York City since 1884 give 29 cases of laparotomy for gunshot wound of the abdomen, with 25 deaths—a mortality of 86.2 per cent.; and the statistics of the three hospitals above mentioned give 16 cases, with 13 deaths—a mortality of 81.2 per cent.

In view of the apparently greater mortality after operation, it is highly desirable that any doubt as to the correctness of the diagnosis in cases recovering without operation should in the future be avoided if possible, and that with this object the track of the bullet should be traced to the abdominal cavity. Preliminary incision along the track of the bullet, or, in case of need, in the median line, is the best and safest means at our disposal to recognize the presence or absence of wounds of the viscera.

The relations between the number and severity of the visceral lesions and the size of the bullet, or the early symptoms, are not, in the majority of cases, sufficiently constant to guide us in the choice between operating and not operating.

An improvement in the results of operative treatment may be expected if the operations are undertaken earlier (before the interference of peritonitis or septicæmia), and if their duration is shortened by rapidity of execution and by restriction of the search for lesions to the readily accessible portions of the intestine and to the probable course of the ball. While some may die through the overlooking of a perforation, fewer, I think, will be killed by the operation.

In cases in which considerable time has elapsed since the receipt of the injury and in which the symptoms of septicæmia or peritonitis are present, with marked distention of the abdomen, an attempt to discover and close the perforations of the intestine will almost certainly be fatal, and operative interference should be restricted to the establishment of free drainage of the abdominal cavity through the wound. In cases seen at an earlier period and in which these grave symptoms have not been developed, the probable chances of success are sufficient to justify an operation to repair the injuries. In the present state of our knowledge it cannot be said that either interference or non-interference should be the rule of practice, and the surgeon may be guided by his own convictions and feelings, whether they lead him to seek to do as much good or only as little as possible.

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#### CHOLECYSTOTOMY.

MR. W. MAYO ROBSON (*The Lancet*, November 2, 1889) reported at a recent meeting of the Clinical Society of London, fourteen cases of cholecystotomy; eleven being for gall-stones, one for empyema of the gall-bladder, and two for distended gall-bladder—due in the one case to cancer of the head of the pancreas; in the other to cancer of the bile-duct. All the patients operated on for gall-stones had recovered. Of the other cases, the patient suffering from empyema of the gall-bladder was operated on when apparently dying from acute peritonitis, but after the operation she made a good recovery except for a biliary fistula, which was afterward closed by cholecystenterostomy. The case of cancer of the pancreas had succumbed on the eighth day to a constant oozing of blood from the interior of the gall-bladder and from the suture punctures. It commenced on the day following the operation, and was apparently due to the altered condition of the blood brought on by persistent jaundice of several months' duration. In the case of cancer of the bile-duct, although there was intense jaundice, there was no subsequent bleeding, or other complication; this might possibly be due to the arrest of hemorrhage at the time of operation by ligatures instead of by forcipressure. Of the cases operated on for gall-stones, six patients had sought advice in consequence of the presence of a tumor combined with the usual symptoms. Mr. Robson remarked that he believed many such cases of frequently recurring biliary colic would in future be saved the intense suffering and the many dangers of their disease by timely operation. He pointed out that these operations were not always easy, as the gall-bladder

was frequently very small, and could with difficulty be brought to the surface.

In conclusion, he remarked that he believed that with due care cholecystotomy, in the absence of malignant disease, was a procedure attended with comparatively little danger, and that the great relief which the operation conferred amply compensated for the attendant risks.

MR. K. THORNTON said that the question of diagnosis was sometimes a difficult one. In a large majority of distended gall-bladders the diagnosis was simple, but if the swelling were very large, the diagnosis from tumor of the kidney had to be made. Cases with adhesions round the gall-bladder and suppuration were very difficult to make out; it was hard to decide whether they were malignant or simply inflammatory. The cure was very rapid in those cases with thick adhesions. In none of the cases in which he had operated had fistula resulted, nor had he met with a malignant case. With regard to the operation, if the gall-bladder were distended it was simple enough, but if the stone were impacted in the common duct he knew of no more difficult one in surgery.

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#### REMOVAL OF THE APPENDIX VERMIFORMIS.

MR. FREDERICK TREVES asserts (*British Medical Journal*, November 9, 1889) that the treatment of cases of relapsing typhlitis by removing the appendix during the period of quiescence offers, probably, more admirable results than are to be obtained in the treatment of any other form of the disease. The points he suggests in connection with the operation itself are the following:

1. The operation should not be performed until all inflammatory and other symptoms have quite subsided.

2. The incision should be made obliquely from above downward and inward over the cæcal region, its lower extremity ending just external to the epigastric artery. The incision should not be made directly over the appendix or over the dullest region. If it be so placed, a number of adhesions will probably be encountered, and the demonstration of the peritoneal cavity might be difficult. The cæcum or the appendix might be actually adherent to the anterior abdominal wall. The incising of the peritoneum should, therefore, be conducted with the very greatest care. It is well that the parietal cut should open the abdomen at a point just beyond the diseased area, and where no adhesions exist.

3. When the appendix and cæcum are exposed, the area of the operation should be cut off from the general abdominal cavity by sponges. If this plugging with sponges be well carried out, no blood should enter the peritoneal space.

4. All adhesions should be divided by cutting; none should be "broken down." The latter measure is apt to tear the bowel, or, at least, to bare it of peritoneum.

5. The appendix should be lightly clamped close to the cæcum, and should be divided about half an inch from that intestine; it should not be secured by a simple ligature. The mucous membrane should be united by many fine sutures, or by a continuous suture; then the divided outer walls of the process should be brought together by a second row of sutures; it is practi-

cally impossible to bring the serous coats together. To secure still further the orifice, the stump of the appendix might be lightly attached to any adjacent surface of peritoneum.

6. The abdominal wound should be closed; no drain is required.

During the progress of the operation, any adhesions likely to give rise to trouble might be dealt with; this more especially applies to adherent omentum, or to adhesions binding down coils of small intestine. If the appendix be closely adherent to the ureter, or to a coil of the ileum, or be found deeply attached in the pelvis, its removal may be attended with very considerable difficulties. The management of such a case must be left to the judgment of the individual surgeon.

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#### INGUINAL COLOTOMY.

MR. HARRISON CRIPPS, in the discussion on the treatment of cancer of the rectum, at the recent meeting of the British Medical Association (*British Medical Journal*, October 12, 1889), reiterated his well-known views as to the advantages of the intra-peritoneal or inguinal method of opening the colon, over the lumbar or extra-peritoneal procedure. He summarizes them as follows:

1. The room in front in which the operator has to work is practically unlimited, and he is not hampered by working in the narrow space between the last rib and the crest of the ilium, as in lumbar colotomy. The bowel can be exposed by a clean incision; the extensive bruising and laceration of the sub-peritoneal fat, often quite unavoidable when searching for the colon from behind, are thus prevented.

2. It is far easier absolutely to identify the bowel from in front, and it is scarcely possible to make the mistake of opening the small intestine, duodenum, or stomach, which not infrequently happens in the lumbar method.

3. In a fat or muscular patient, the bowel can be fixed to the skin with much less tension, partly owing to the mobility of the sigmoid flexure, and partly to the ease with which the skin can be depressed.

4. If the bowel takes an abnormal course, it will scarcely affect the operation, while such a deviation in the lumbar region leads to complete failure.

He makes his incision rather higher than most surgeons, its centre being a little above an imaginary line drawn from the anterior superior spine to the umbilicus. The incision crosses this line at right angles two inches from the anterior superior spine. As soon as the colotomy wound has consolidated, the rectum may be washed out once daily with weak Condy's fluid, followed by a boracic acid lotion, ten grains to the ounce.

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#### LITHOLAPAXY VERSUS LITHOTOMY.

SURGEON-MAJOR P. J. FREYER reports (*British Medical Journal*, October 12, 1889) a further series of stone cases, 100 operated on by litholapaxy, 32 by lithotomy. His last report was up to August, 1887, and recorded a series of 100 cases of operation for stone without a death. He has now operated in 552 cases, and his opinions, based on such an experience, are, of course, worthy of the most careful consideration. A few of the interesting statistics which he gives may be quoted:



Amongst the 100 cases of litholapaxy there were 66 adults—64 males and 2 females—and the average age of these was forty-eight years nearly, ranging from eighteen to eighty-five. There were 34 children—33 boys and 1 girl—and the average age was seven and three-quarters years approximately, varying from one and a half to fourteen.

The average number of days spent in hospital, or, in the case of patients in private practice, under treatment, was five and a half nearly, the average for children being practically the same as that for adults. The average weight of calculus in the 100 cases of litholapaxy was 184 grains, the average for adults being 221 grains, and that for children 112 grains nearly. In the paper already referred to, he intimated that, influenced by the very excellent results obtained by Dr. Keegan from the practice of litholapaxy in male children, he had abandoned the position of opposition which he, in company with other surgeons generally, had previously maintained in regard to litholapaxy in males below the age of puberty. He then gave details of 16 cases of stone in male children in which he had successfully performed litholapaxy. Since that time 64 male children suffering from stone have come under his treatment, and in 33 of these he has performed litholapaxy, in all with complete success. He attempted litholapaxy in all the cases, but in 29 he found it necessary to have recourse to lithotomy. The proportion in which litholapaxy was not feasible is large, but this, he says, is due to the length of time it takes to procure lithotrites of small size from the good instrument-makers nowadays, so that the smallest lithotrite in his possession previous to September, 1888, was a No. 7. In that month he received a No. 5 lithotrite from Weiss, and since then, out of 13 cases of stone in children, he has disposed of 12 of them by Bigelow's operation, only one case, in which the urethra admitted only a No. 3 sound, being relegated to lithotomy. He adds that lithotomy in the adult has now been practically blotted out of his practice, only 4 out of 131 cases of stone in the adult that have come under his care since January 1, 1886, having been operated on by this method (3 suprapubic and 1 median), litholapaxy having been found feasible in all the other 127 instances; and, after having now performed 49 litholapaxies in male children and 3 in female children without a death, he has no hesitation in saying that he confidently looks forward to lithotomy in children meeting with a similar fate.

[These are very forcible and somewhat surprising conclusions, but they are supported by his results, and, as has been said, deserve to be carefully weighed. The writer may, from personal experience, corroborate Freyer's statement as to the difficulty of procuring small lithotrites from reliable makers, having been told by Weiss during last July that he could not certainly be supplied with one before January, 1890.—ED.]

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#### THE THERAPEUTICS OF CHRONIC GONORRHOEA.

DR. WILHELM FLEINER, after mention of the unsatisfactory results obtained in the treatment of chronic gonorrhœa, asserts (*Münchener medizin. Wochenschrift*, October 1, 1889) his belief that the foundation for successful management of these cases has been laid by the investigations of Neisser, Bumm, Deichler, and others, into the effects of gonococci upon the tissues,

and by the direct inspection of the canal by the urethroscope. These teach us, according to Fleiner, that the gonococci, having gained access to the urethra, diffuse themselves from the fossa navicularis backward, penetrating the mucous membrane, setting up a catarrhal inflammation, causing stenosis, etc. If they are not destroyed by injection or other means during the first week then inflammation becomes chronic. Unna then treated it with bougies coated with the following mixture: Nitrate of silver, 1 part; white wax and Peruvian balsam, each,  $2\frac{1}{2}$  parts; cacao butter, 95 parts. Caspar used a similar mixture, combining his silver nitrate with lanolin and olive oil, and applying it by sounds grooved longitudinally. Fleiner uses an ointment very like that of Unna, but omitting the balsam, for which he gives the following formula: R.—Argenti nitrat., 1.0; ceræ flav., 2.0; butyr. cacao, 17.0. A polished nickel-plated steel sound is used. It is first warmed, then coated with the ointment by drawing it through the mass, which solidifies promptly upon the surface of the sound, and melts again when introduced into the urethra. The immediate result is increased secretion. Forty-one cases, in which there was more or less pronounced urethral contraction, were treated in this manner, and the majority were cured in from four to six applications. In only eight cases were more than ten treatments necessary.

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#### A NEW METHOD OF TREATMENT OF DEVIATIONS OF THE SPINE.

E. FISCHER (*Journ. de Méd., de Chirurg. et de Pharm. de Bruxelles*, October 5, 1889) describes his method of correcting certain forms of spinal curvature: In scoliosis of the spinal column localized in the back, and presenting a convexity to the right, the author orders the following procedure, three times daily, each treatment lasting three-quarters of an hour. It consists of placing the arms, flexed at a right angle, upon a cushion laid in a chair in such a manner that the trunk is bent over upon the thighs, and the spinal column is horizontal. A band is then placed around the body at the level of the scoliosis, and a weight attached to it. Children from eight to ten years of age bore, in the first attempts, from 21 to 26 pounds. In the first two weeks, weakly people bore 80 pounds; those physically stronger as much as 200 pounds. The weight should be used as long as the patient can bear it—at first for several minutes only; later, during a quarter of an hour at least. He has also found it beneficial to make the patients walk in this position; they accomplish this by supporting themselves on two chairs connected by a transverse bar. They can in this manner carry from 25 to 40 pounds for a quarter of an hour. After this the patient undergoes a gymnastic treatment, bending the body so that with the arms extended the hands touch the soles of the feet, and then standing erect. Sometimes it is better to do this while holding in each hand a weight of from 5 to 13 pounds.

Further treatment is by means of a bar with weight and bands, continuing at the same time vertical and transverse extension of the curve.

## OTOLOGY.

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 UNDER THE CHARGE OF

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 SCARLATINOUS INFLAMMATION OF THE LABYRINTH.

Toynbee was the first to demonstrate that the majority of ear diseases were caused not by affections in the nervous apparatus of the internal ear, but were due to lesions in the drum-cavity, the physiological function of which is to convey the vibrations of the membrana tympani, the auditory ossicles, and the membrane of the round window, to the perceptive apparatus.

At present about four per cent. of all ear diseases are regarded as nervous. KATZ, of Berlin, however, holds that when microscopic examinations of the ear in cases of deafness, are more frequently made, the percentage of nerve-lesions in aural diseases will be shown to be greater. (*Deutsche med. Wochenschrift*, October 10, 1889.)

The two great causes of nervous affections of the ear are epidemic cerebro-spinal meningitis and scarlatina. The latter, however, from its greater frequency and wider dissemination, is oftener the cause of disease of the ear than the former. Statistics of Baden (Switzerland) show that from 22 to 33 per cent. of all scarlatinous patients suffer more or less from aural lesions. Bezold found that in 185 cases of ear disease induced by scarlatina, in 30 instances the entire membrana tympani, with one or more of the ossicles, was destroyed; 59 times two-thirds of the membrane was destroyed; and 13 times a small perforation was found in the drum-membrane. In 5 instances the membrana flaccida, or Sharpnell's membrane, was the seat of the perforation. *This form of the disease is always serious, as it is invariably a symptom of caries in the upper part (the attic) of the drum-cavity.* 44 times granulations and polypi were found; 6 times cicatrices, fistulæ, or active processes were found in the bone of the mastoid portion. In respect to the hearing, 15 times it was found entirely destroyed, and six children were rendered mutes. In 77 cases the hearing distance for low-toned words was less than half a metre, 25 times it ranged from half a metre to two metres, and 14 times it was a little over two metres.

Katz claims that the fact that scarlatina often induces great hardness of hearing or even total deafness, lasting during all the rest of life, leads to the conclusion that in many cases we are confronted, not with ordinary inflammatory lesions in the conducting apparatus, but with deeper processes in the sound-perceptive apparatus in the cochlea. He is emboldened in this view by the fact that some patients hear well, in whose drums are found large perforations, calcareous spots, large cicatrices, and who have even lost some of the ossicles. In many cases the hearing depends upon the greater or less mobility of the stapes in the oval window.

The writer then endeavors to show the nature of the changes in the terminal

nerve-filaments, inducing absolute deafness, by the presentation of the description of changes found in the middle and internal ear in cases of absolute deafness produced by scarlatinous diphtheria. He remarks, parenthetically, that in scarlet fever and in measles, the ear previously affected by catarrh is most quickly attacked. The membrana tympani was found wanting, the malleus and anvil were destroyed, and of the stirrup only the foot-plate was present. The mucous membrane of the drum-cavity was greatly swollen and partly destroyed by diphtheria. The mastoid cells were filled with cheesy pus, but the wall of the transverse sinus, as also the tegmen tympani, was intact. The purulent process in one case had passed to the meninges by the way of the vestibule, the cochlea, and the internal auditory meatus. The acoustic and facial nerves were infiltrated with pus. In some of the scalæ of the cochlea were numerous masses of pus-cells. The periosteum of the vestibule and the cochlea was entirely destroyed; only some of the coarser portions of Corti's organ were found. The soft parts in the vestibule had undergone a similar softening and annihilation. In fact, there was presented that condition termed *panotitis* by Politzer, and which is often found in scarlatina, but without the same anatomical proof offered in this instance by Katz. The necrotic process was undoubtedly communicated from the nasopharynx through the Eustachian tube, to the drum-cavity, and thence through the oval window to the vestibule, the cochlea, and to the trunk of the auditory nerve.

In a second case of inflammation of the labyrinth, induced by scarlatina, valuable microscopic specimens were obtained, which showed on the inner surface of the stapes foot-plate, quite a thick fibrinous layer, which also extended into all the scalæ of the cochlea, and into the sacculi of the vestibule, where there were also found numerous round cells. Corti's organ was not found in a perfect state in any of the scalæ, and Reissner's membrane was covered with round cells. The inflammation had passed from the vestibule to the porus acusticus internus, and in the fibres of the acoustic nerve numerous collections of pus-cells were found. In the mucous membrane of the drum-cavity numerous colonies of streptococci were detected.

In the left ear of this same case, a general and intense swelling of the mucous membrane was found, in which were numerous cystic spaces, and an intense vascular ectasia. "Such a pathological condition explains most clearly how scarlatina may be followed by incurable nervous deafness."

The author maintains what we have long held to, that primary idiopathic inflammations of the labyrinth are extremely rare, if we except the traumatic form, which may easily arise in fractures of the base of the skull. Even the one case cited by Ménière, which unfortunately and unfairly has given his name to a disease, and which he attempted to describe as a *primary* inflammation of the semicircular canals, is *doubtful*, as in this well-known case no disease was found in the brain nor in the spinal cord. Even the cochlea was normal, but in the semicircular canals Ménière claimed that he found a plastic, reddish exudation. But his statement that the patient was deaf during life, and yet he found the cochlea normal, leads to the conclusion that there must have been an error somewhere in the investigation, for the function of hearing is dependent on the cochlea. Furthermore, Ménière could not discover the

cause of death; it could not have been from inflammation of the labyrinth in this instance.

*Treatment.*—In scarlatinous inflammation of the labyrinth, benefit at least, if not entire restoration, can be obtained in acute cases if the inflammation is limited, and if the treatment is antiphlogistic from the outset. In scarlatina, suppuration of the middle ear may be guarded against by inflation and antiseptic washes of the nasopharynx. Nothing can be done for chronic inflammation of the labyrinth. Iodide of potash is of no use. Of late years, Politzer, Moos, and Wolf have recommended the subcutaneous injection of pilocarpine, with which, however, much more extensive experience must be obtained before valuable conclusions can be drawn.—*Deutsche med. Wochenschrift*, No. 41, 1889.

#### A METHOD OF LOCAL MEDICATION IN PERFORATIVE OTORRHOEA.

MR. A. MARMADUKE SHEILD suggests the employment of a form of suppository or "pellet," containing various medicaments for the ear in chronic otorrhœa. The size of the pellets is that of a swan-shot. The basis of them is oil of theobroma. They melt very quickly. The patient is directed to lie on the side opposite the ear to be treated, and then one of the pellets is allowed to roll down the canal of the affected ear, till it reaches the fundus, when it quickly melts.—*Practitioner*, November, 1889.

#### TREPHINING OF THE MASTOID IN CASES OF SUPPURATION OF THE MIDDLE EAR, AS OBSERVED IN THE SURGICAL CLINIC OF ZURICH.

The above is the title of an inaugural dissertation by WALTER SHERRER, Zurich, 1889. A number of cases are given in which trephining of the mastoid was performed in the surgical clinic during the service of Krönlein (1881–1888). Forty-six cases are given, divided into six groups, viz.: 1. Twenty-three cases with perforation of the cortex of the mastoid (fistula). 2. Six cases with necrotic softening of the mastoid process without perforation, in which are two deaths from abscess of the cerebellum and from diphtheria. 3. Nine cases with suppuration in the mastoid cells, with healthy external surface. 4. Three cases of sclerosis of the mastoid process. 5. One case of erosion of the transverse sinus. 6. Four cases of exposure of the dura mater (one death, meningitis originating before the operation).

The method of operation was with hollow chisels. In the after-treatment the dressings were allowed, as a rule, to remain unchanged eight to ten days. After washing out the wound with sublimate solution (1 : 2000) it was tamponaded with iodoform gauze, and the latter brought out at the lower angle of the incision, the upper part of the latter being sutured.

At the first change of dressings the secretion was usually so slight that the iodoform gauze could be omitted, and the wound dressed with antiseptic compresses. Drainage tubes were used only when suppuration in the neck was present. No leaden nail nor leaden tube was employed. Syringing of the external auditory canal was performed only when a copious and offensive discharge was present, which showed no tendency to rapid cessation soon after the operation.

The results compare favorably with those in the aural clinics of Lucae, Schwartze, and others, as published by them. Otorrhœas cured, 80 per cent., of which 65.2 per cent. remained cured. In the three fatal cases, the causes of death were in no way connected with the operation. The length of treatment, compared with that of others, was strikingly short. In twenty-seven acute cases (all cured) the length of treatment was forty-four days; in nineteen chronic cases (ten cured) the average length of treatment was forty days.

The good results are attributed by Scherrer largely to the simple after-treatment, which is to be preferred to the complicated methods in use by others. This conclusion is apparently justified by the result in acute cases, but is not always sufficient in chronic cases, in which careful cleansing of the mastoid cavity must be often kept up for a long time. As Schwartze has said, the operation is often only the beginning of treatment. (Review by Koll, of Aix: *Centralblatt f. Chirurgie*, 14, September, 1889.)

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## DISEASES OF THE LARYNX AND CONTIGUOUS STRUCTURES.

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UNDER THE CHARGE OF

J. SOLIS-COHEN, M.D.,  
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### REMOVAL OF THE HYPERTROPHIED PHARYNGEAL TONSIL.

PROF. KUHN, of Strassburg (*Deutsche med. Wochenschrift*, October 31, 1889), commends a modification of the rhino-pharyngeal forceps, the cutting portion being a pair of oval rings much larger than the jaws of the forceps commonly used; each ring being crossed with a pair of bars to prevent loss of the tissues severed. Kuhn operates under slight general anæsthesia, and without the guidance of the mirror. He usually removes the entire mass in the first attempt; but sometimes has to introduce the forceps a second time to complete the extirpation. He finds it necessary to keep his patients in bed with ice-bags around the throat for two or three days after the operation.

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### EXTIRPATION OF THE LARYNX.

DR. MELVILLE WASSERMANN, of Heidelberg, has contributed to the *Deutsche Zeitschrift für Chirurgie*, 1889, Bd. 29, Hefte 5 u. 6, the most valuable paper upon the status of this operation that has been published. By correspondence with the various operators he has endeavored to bring the history of all the cases tabulated to their termination on the one hand, or to their progress up to date on the other. His summaries as to the selection of cases, the best operative procedures, the after-management, and the causes of failure accord in the main with the views now generally entertained by those most

competent to express opinion. A prevalent belief that laryngectomy has become of late years a much more successful procedure in carcinoma, is not supported by the statistics here collected. The number of deaths as the immediate outcome of the operation has much lessened, indeed, but the average prolongation of life in operations performed since 1881 is even markedly less than that attained in the operations before that date.

This date has been arbitrarily chosen because it was in 1881 that the subject was so systematically discussed in the International Congress at London, and only in 1881 that the use of iodoform dressings became general. Thus 60.96 per cent. of the patients operated upon before 1881 died within two months, and only 36.35 per cent. of those operated upon since. This gain is to be attributed to improvements in technique and to improvements in dressings.

Of 118 complete laryngectomies for carcinoma, 41 were performed previous to August, 1881, and 77 after that date. Of these patients, 41 died within fourteen days; 22 before August, 1881, 53.65 per cent., and 19 after that date, 24.67 per cent.

Twelve died within two weeks and two months; 3 before August, 1881, 7.31 per cent., and 9 after that date, 11.68 per cent.

Forty had recurrence; 11 in the first category, 26.83 per cent., and 29 in the second, 37.66 per cent.

Eleven died of intercurrent diseases; 2 before 1881, 4.87 per cent., and 9 after 1881, 11.68 per cent.

Six were reported as cured too early; all after 1881, 7.79 per cent.

Eight remained free from recurrence three years after operation; 3 before 1881, 7.31 per cent., and 5 after 1881, 6.49 per cent.

Of these 8, 1 died of catarrhal pneumonia four and one-half years after operation, 1 at four and one-half years, of apoplexy, and 1 at six years, of pleuritis. The remaining 5 continue well at three and one-half, four, four and one-half, five and three-quarters, and seven and one-half years, respectively.

Of 50 cases of partial extirpation for carcinoma, 10 preceded and 40 followed August, 1881.

Fourteen died within fourteen days; 3 before 1881, 30 per cent., and 11 after 1881, 27.5 per cent.

Eight died of complications; 1 before 1881, 10 per cent., and 7 after 1881, 17.5 per cent.

Eleven had recurrence; 3 before 1881, 30 per cent., and 8 after 1881, 20 per cent.

One died of intercurrent disease among those operated on after 1881, 2.5 per cent.

Twelve were reported too early to be regarded as permanently cured; 2 before 1881, 20 per cent., and 10 after 1881, 25 per cent.

Four have been permanently cured; 1 before 1881, 10 per cent., and 3 after 1881, 7.5 per cent.

In a foot-note it is mentioned that the patient operated upon before 1881 (one of Hahn's cases) has a regional recurrence commencing seven and one-quarter years after operation, and therefore is not permanently cured.

One case remains well four years after operation, and one after three and one-half years.

Furthermore, 1 case died three and one-half years after operation, without recurrence, 1 at two and one-half years of catarrhal pneumonia, without recurrence; and 4 are well at two and one-half, two and three-quarters, three and one-half, and four years after operation, respectively.

Sixteen complete extirpations have been practised for disease other than carcinoma; 7 before August, 1881, and 9 afterward.

Five died within two weeks; 1 before 1881, 14.28 per cent., and 4 after, 44.44 per cent.

Two died between two weeks and two months; both before 1881, 28.57 per cent.

Four had recurrence; 2 before 1881, 28.57 per cent., and 2 after, 22.22 per cent.

One died of intercurrent disease after 1881, 11.11 per cent.

Two cases were reported too early; both after 1881, 22.22 per cent.

Two cases were permanently cured; both before 1881, 28.57 per cent. These were cases of sarcoma; one operated on by Gaselli, well seven years after operation, and the other by Bottini, well thirteen and one-half years after operation.

Twenty-one partial extirpations have been practised for diseases other than carcinoma; 8 before 1881, and 13 after 1881.

Two died in the first two weeks; 1 before 1881, 12.5 per cent., and 1 after, 7.69 per cent.

One more died between two weeks and the first two months; after 1881, 7.69 per cent.

Three suffered recurrence; 1 before 1881, 12.5 per cent., and 2 after, 15.38 per cent.

Seven died from intercurrent disease; 5 before 1881, 62.5 per cent., and 2 after, 15.38 per cent.

Five were under observation too short a time; all after 1881, 38.46 per cent.

One is living two and three-quarters years after operation.

Three are permanently cured; 1 before 1881, 12.5 per cent., and 3 after, 15.38 per cent.

For sarcoma, there have been 7 total and 6 partial extirpations.

Of the 7 total extirpations, 4 were performed before 1881.

Death from marasmus occurred in 1 case seven months after operation, 25 per cent.

Recurrence took place in 3 cases; 1 in those operated on before 1881, 25 per cent., and 2 in those after 1881, 66.66 per cent.

Two cases were permanently cured, both operations dating before 1881; 50 per cent.

Of the 6 partial extirpations for sarcoma, 3 were performed before 1881, and 3 after 1881.

One patient died in the first two weeks, before 1881, 33.33 per cent.

Three died of intercurrent disease; 2 before 1881, 66.66 per cent., and 1 after, 33.33 per cent.

Recurrence took place in one instance, 16.6 per cent. of the total; and



permanent recovery ensued in one instance, 16.6 per cent. of the total; the patient remaining well seven and one-half years after operation.

Wassermann discusses the various indications for operation, the differential diagnosis of the disease for which the operation is practised, discusses the prognosis and treatment, presents an analytical table of all cases accessible to him on record and unrecorded, and adds an appendix of cases collected since his article was prepared, with additional tables which alter the percentages a little in some of the groups.

He commends laryngectomy in carcinoma in preference to giving the patient no chance for cure, and he believes that the freedom from pain and the hope of cure inspired for months, or for a year or two, as may be, are fully worth all the risks from submission to the operation.

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## DERMATOLOGY.

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UNDER THE CHARGE OF "

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AND

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### THE TREATMENT OF PSORIASIS WITH POTASSIUM IODIDE.

GUTTELING, following Haslund, treated experimentally twenty-two cases of psoriasis with full doses of potassium iodide (*Weekbl. van het Nederl. Tijdschr. voor Geneesk.*, 1889, i. 17; *Therapeutische Monatshefte*, June, 1889). The highest dose per day was 850 grains; the same patient taking in all, in the course of the treatment, 115 ounces. The average dose was 150 to 300 grains a day, and the observation was made that if such doses failed to benefit, a larger quantity failed likewise. In five patients it was, on account of distressing iodic symptoms, necessary to discontinue the remedy. In several the disease remained stationary and uninfluenced after a certain point had been reached. In five cases complete recovery resulted. Iodide acne was noted in many of the cases; in one purpura, and in another œdema of the legs, and in another rheumatic pains in the limbs. Albuminuria was not observed, nor were any serious heart symptoms noted. The patients, it may be added, were, excepting the skin eruption, free from disease.

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### ANTHAROBIN.

ROSENTHAL's experience (*Deutsche med. Wochenschrift*, August 22, 1889) with the external use of antharobin in certain diseases has been negative. It was applied in alcohol (antharobinspiritus), twenty per cent. strength.

In several cases of psoriasis, tinea versicolor, and ringworm of the scalp the action was at the best exceedingly slow and unsatisfactory. It stains the skin as well as the linen, and in curative power (psoriasis especially referred to) is not comparable to chrysarobin or pyrogallie acid.

#### ICHTHYOL IN CUTANEOUS DISEASES.

Series of therapeutical experiments have been made by KOPP (*Münchener medizinische Wochenschrift*, Nos. 35 and 36, 1889) regarding the value of ichthyol, internally and externally, in the treatment of certain cutaneous diseases. The results may be briefly summarized: In acne rosacea the internal administration, about fifteen grains daily, appeared the more valuable, although improvement, usually temporary, could often be effected by external application of a ten per cent. solution or ointment. In simple acne, its external use was of decided advantage, and in some cases its internal administration was of service. In erysipelas the application of a thirty to fifty per cent. ointment was of benefit. In burns and frost-bites of the first and second degree, the drug was efficacious, used variously in solution or ointment of ten to twenty per cent. strength. In eczema its local application was uncertain, and, upon the whole, without striking results. In several cases of the neurotic type it acted favorably. Given internally, it was useful in those cases in which digestive disturbance was a factor. In prurigo it proved far inferior to other known applications. Pruritus was treated both externally and internally with ichthyol, but the results were not encouraging. At times its application proved palliative. The benefit from its local use in seborrhœa sicca was not sufficiently striking to warrant its employment in preference to the more common and less unpleasant methods. Internally, however, in several instances it appeared to possess some influence in preventing relapses.

#### DUHRING'S DISEASE, AND A NEW VARIETY OF THE SAME.

Under this caption UNNA (*Monatshefte für praktische Dermatologie*, Bd. ix. No. 3) gives his views concerning the dermatitis herpetiformis of Duhring, which he would define as "a non-hereditary, chronic nerve-disease of the skin, not prejudicial to the general health, tending to regular recurrence at variable intervals, more or less universal distribution, and lesions of an erythematobullous type." In the diagnosis, first, relapses are looked upon as being absolutely indispensable, and in cases where these do not occur the author would hesitate to make the diagnosis of Duhring's disease. The second most important group of symptoms is that comprising itching and burning (the so-called "paræsthesias" of the author). Thirdly, the polymorphous character of the eruption is a striking feature; and, fourthly, the good general health of the patient is a point to which attention is called.

Unna suggests the name "hydroa" for the disease in place of that given by Duhring, and, further, would make four varieties, viz.: H. grave, H. benign, H. gravidarum, and H. puerorum. The last named is described at length as a new variety, and is characterized by beginning in the early years of life; shows less tendency to polymorphism—being mostly papular—and is accompanied by pain rather than itching. Five cases are referred to.

## ERYTHEMA NODOSUM AND ALLIED ERUPTIONS.

BAUMLER, of Freiburg (*Wiener klin. Wochenschrift*, No. 45, 1889), who believes erythema multiforme and erythema nodosum to be forms of the same disease, discusses erythema nodosum and its possible causes, and expresses the opinion that it is to be regarded as an infectious disease, a view that has of late years been gaining ground in Germany and France. As reasons, the author gives—the often severe general character of the affection; the high, long-continued fever of a remittent type; the inflammation of the skin and mucous membrane sometimes leading to the formation of pustules; the affection of the joints, sheaths of the tendons, serous membranes, and endocarditis. With such manifestations the erythematous or nodose varieties of the disease may bear the closest resemblance to other well-known infectious diseases, such as varicella, variola, and syphilis, with which they may be (and have been) confounded, as Hutchinson and Lewin have in former years shown. Reference is made to the observations of Uffelmann and Oehme, in 1876, who attempted to show some relation between erythema nodosum and (the now recognized infectious disease) tuberculosis.

## ELEPHANTIASIS AND ITS TREATMENT BY ELECTRICITY.

SILVA ARAUJO (*Atlas des Maladies de la Peau*, 3<sup>me</sup> fascicule, 1889), of Rio de Janeiro, gives his experience, extending over many years, with this intractable disease, so common in Brazil. Four hundred cases have been under observation and treatment. Electricity, in the form of the continuous and interrupted currents and with electrolysis, together with massage, and pressure by means of the rubber bandage, have given satisfactory results. (The author's views as to the value of the electric current in the treatment of this disease were published as early as 1877.) A series of six photographs of a patient portraying elephantiasis of the legs, taken at intervals from 1879 to 1885, shows the marked improvement which took place from year to year, from which it appears that two years after the beginning of the treatment cure practically resulted. Judging from the photographs, the results are eminently satisfactory. The author insists upon the point that the remedies must be employed for a long time and perseveringly. Apart from the matter pertaining to treatment, the essay contains interesting statistics.

## PRURITUS CUTANEUS UNIVERSALIS.

WERTHEIMBER (*Münch. med. Wochenschrift*, No. 44, 1889) speaks favorably of the value of salicylate of sodium in two severe cases and one light case of this form of the disease, the dose being one ounce, three times daily, of a three per cent. solution.

## LUPUS VULGARIS; ITS TREATMENT WITH BALSAM OF PERU.

SAALFELD, of Berlin (*Deutsche med. Wochenschrift*, November 7, 1889), in view of the favorable results obtained by Landerer in the treatment of various tuberculous affections with balsam of Peru, was led to employ in it lupus vulgaris. The crusts are to be removed with soap and water and the

remedy applied twice daily with a brush. The results were, up to a certain point, satisfactory; the author believing that the balsam, more than any other known local remedy, as it were, prepares the disease for the more radical methods of treatment, such as scraping and the galvano- and thermocautery.

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## OBSTETRICS.

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UNDER THE CHARGE OF

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### RETROVERSION OF THE UTERUS IN PREGNANCY.

MARTIN (*Deutsche med. Wochenschrift*, No. 39, 1889) has found in 24,000 women 121 cases of retroflexion of the uterus persisting during pregnancy. In 27 of these cases pregnancy occurred, although the deformity was congenital, and affections of the endometrium, tubes, and ovaries were not uncommon. A case is cited in which the patient suffered for three and a half years with congenital retroflexion and gonorrhœa, but after recovery she conceived and bore a healthy child.

It was usually true that sterility in these cases depended upon a diseased endometrium or stenosis of the tube, and not upon the congenital retroflexion.

In 94 cases the retroflexion persisted after repeated pregnancies; 9 of these patients wore pessaries at the time when conception occurred. A large portion of pregnancies in retroflexed uteri with beginning incarceration never come to the physician's notice, but undergo spontaneous reduction. When this does not occur the most significant symptom is dysuria.

Reposition of the retroflexed uterus should always be done if spontaneous restitution fails; if necessary, the uterus should be amputated, or removed *per vaginam* if pregnancy be not advanced.

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### THE ORIGIN OF PLACENTA PRÆVIA, WITH AN ILLUSTRATIVE CASE.

KALTENBACH (*Centralblatt für Gynäkologie*, No. 40, 1889) reports a carcinomatous uterus at four months' pregnancy, in which the cervix was closed by the cancer, the internal os closed, the placental site covering more than half the periphery of the ovum. Over the internal os was a cup-shaped space where the ovum was not joined to the uterine wall. This was covered by a lobe of placenta developed within the decidua reflexa in the inferior pole of the ovum. This case corroborates the observation of Hofmeier, that placenta prævia is placenta developing within the decidua reflexa of the inferior pole of the ovum. The most frequent cause for this development is endometritis of the body of the uterus.

## THE DIAGNOSIS OF PLACENTA PRÆVIA BY PALPATION.

SPENCER (*Transactions of the London Obstetrical Society*, vol. xxxi., 1889) reports in detail seven cases of placenta prævia in which he diagnosticated, by abdominal palpation, the presence of the placenta in, or its absence from, the front wall of the lower uterine segment, the diagnosis being subsequently verified by internal examination. The cases were head presentations in multiparæ, before pains were present and the membranes had ruptured; no anæsthetic was used.

In three cases the exact site of the placenta on the front wall of the lower segment was determined; in two cases the placenta was felt when by vaginal examination it could not be found. The absence of the placenta from the anterior wall was diagnosticated in four cases.

The patient should lie on her back for these examinations, the bladder having been emptied; the examination should be gentle, made in the absence of pains, prolonged for several minutes, or repeated if needed. When the placenta is in front of the head it is felt a spongy mass between the fingers and the head. Its edge feels like the segment of a circle within which the touch is obscured; outside the child is plainly felt. Impulses to the head are not clearly felt through the placenta; impulses to the head through the placenta are distinctly felt where the placenta is absent.

## DEEP INCISION OF THE CERVIX IN DELAYED LABOR.

DÜHRSEN (*Münchener med. Wochenschrift*, No. 43, 1889) reports ten cases of labor delayed by rigidity of the cervix, which imperilled the child's life. As these cases, if left without interference, result in foetal death and septic maternal infection, incision of the cervix to the level of the vaginal attachment was practised. The os and cervix were tamponed with iodoform gauze to check bleeding and prevent infection. All the mothers recovered, although three had septic infection; eight of the children survived. This procedure is especially demanded in old primiparæ, in whom the mortality rate is usually high.

## A CRITICAL STUDY OF 206 FORCEPS APPLICATIONS IN THE DRESDEN CLINIC.

MÜNCHMEYER (*Archiv für Gynäkologie*, Band xxxvi., Heft 1) collects 206 forceps applications in 7322 labors in clinical records at Dresden, of which 187 were low forceps, and 19 high forceps applications. The average frequency of application was 2.8 per cent. The maternal mortality was 7 (3.4 per cent.), and was in no case attributable to the forceps only. 119 women (57.7 per cent.) suffered extensive lacerations of the genital canal; 141 (68 per cent.) had no fever during the puerperal state; 20 (9.7 per cent.) had mild fever; 45 (21.8 per cent.) had high fever, and 7 (3.4 per cent.) had very perceptible parametritis. Of the 206 children, 35 died (17 per cent.), and 25 (12 per cent.) were fatally injured by the forceps; 171 (83 per cent.) left the clinic in good health. Of the 19 mothers in whom the high forceps operation was done none died, 8 (42 per cent.) had fever; of the 19 children 5 perished (21 per cent.), and more suffered severe lacerations. From these results Münchmeyer concludes

"that the forceps is the bloodiest of all obstetric instruments because of the lacerations it causes." The high application of the forceps is deemed advisable only in practised hands, and the low application may easily result in lacerations of the vagina and cervix, although the perineum remain intact, which may cause fatal hemorrhage. The forceps should be used as rarely as possible; in 1887 it was applied but 27 times in 1387 cases; in 1888, 25 times in 7369. Severe hemorrhage after forceps births is usually caused by laceration of the vagina and cervix, and should be treated at once by suture.

It is of interest to note that 71.9 per cent. of these patients were primiparæ, 28.1 per cent. multiparæ; 69 had contracted pelves with antero-posterior diameter  $3\frac{1}{2}$  inches, 26 highly contracted pelves with diameter as small as 2.6 inches. Forceps applications were permitted only when measures to render uterine contractions efficient had failed. Weak pains, or the cessation of pains never justified the forceps' use; positive danger to mother and child was the only valid reason for their application. The instrument used was Nägele's; no indication for axis-traction forceps was recognized.

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#### CÆSAREAN SECTION AND OÖPHORECTOMY FOR RACHITIS.

O'SULLIVAN (*Australian Medical Journal*, September 15, 1889) reports a case of pregnancy in a rachitic woman whose pelvis measured, antero-posteriorly, two inches. Cæsarean section was performed, the constricting bandage about the cervix prevented bleeding. The uterus was turned out of the abdomen and incised and the child was extracted. Tubes and ovaries were removed. The uterine wound was closed with catgut, the abdominal with silver wire. Mother and child recovered.

MEYER (*Ibid.*) reports a Cæsarean section for rachitis, followed by death from peritonitis; and

HOOPER (*Ibid.*) adds a case of pregnancy and carcinoma of the cervix, in which it was too late to operate. After the spontaneous birth of a macerated fœtus, the mother perished from exhaustion and sepsis.

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#### CÆSAREAN SECTION FOR FIBROMA OF THE UTERUS.

TUFFIER (*Annales de Gynécologie*, November, 1889) has recently performed Cæsarean section upon a patient six months pregnant: the indication for operation was severe uterine pain; nausea; weakness; elevation of temperature and threatened exhaustion. Examination revealed multiple fibromata of the uterus the cause of this condition. The operation was not especially difficult; a line of incision was taken which did not traverse the fibromatous mass; there was no hemorrhage and but little shock; the child was born living. Twenty-four hours after operation the patient died in collapse, without pain, hemorrhage, fever, or vomiting. Post-mortem examination revealed pyelo-nephritis the cause of death, which resulted from an extraordinarily large fibromatous mass which filled one of the broad ligaments and compressed the ureter.

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#### PREGNANCY IN UTERUS BILOCULARIS; PORRO OPERATION; RECOVERY.

RIEDINGER (*Wiener klinische Wochenschrift*, No. 45, 1889) describes a case of uterus bilocularis in which a fœtus became imprisoned as follows: The

patient had previously been treated for dysmenorrhœa by discission of the cervix. Normal pregnancy followed and labor pains began, but no progress was made. Examination revealed an unimpregnated uterus which could be easily entered. A fully developed fœtus lay in a muscular sac to the left of the uterus. No communication with the fœtus was found. When labor had fairly begun uterine amputation was performed. The fœtus was delivered readily on incising the uterus. Mother and child recovered. The examination of the uterus showed a bilocular womb, with no apparent communication between the cavities. Regarding the occurrence of menstruation and conception in this blind cavity, no adequate explanation is given. The only analogy is uterus bicornis, or with rudimentary horn.

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#### ECTOPIC GESTATION.

TAIT (*Provincial Medical Journal*, November 1, 1889) regards ectopic gestation as largely tubal, and divides the cases into interstitial (ovum in the tube at its uterine end); infundibuliform; and pregnancy in the tube proper. The last is most common, and its rupture results in hemorrhage into the broad ligament, or into the peritoneal cavity. In the former, pressure of the layers of the ligament stops the bleeding, the ovum disintegrates, and the whole becomes a pelvic hæmatocele which is usually absorbed. In the latter, there are no such pressure and confinement of the hemorrhage, but bleeding is unchecked and fatal. Occasionally the fœtus develops to full size in the peritoneal cavity. The treatment consists in letting the hæmatocele alone; in performing laparotomy for intra-peritoneal hemorrhage, and ligating the tube; a fœtus in the abdomen should be removed.

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#### THE TREATMENT OF RUPTURE OF THE UTERUS WITH COMPLETE ESCAPE OF THE FŒTUS.

SCHAEFFER (*Münchener med. Wochenschrift*, Nos. 42 and 43, 1889) concludes, from the comparative study of various methods of treatment in this complication, that laparotomy is most successful in cases where the fœtus with intact membranes escapes into the abdominal cavity through the scar of a previous Cæsarean section or during a brief labor. Laparotomy is successful in 60 per cent. to 77 per cent. of cases in which the fœtus with ruptured or unruptured membranes escapes through a uterine scar during labor; when the fœtus escapes during pregnancy and decomposition and suppuration result, 60 per cent. recover by laparotomy. When rupture of the uterus and complete escape of the fœtus occur during labor, with the entrance of amniotic liquor in the abdomen, 44 per cent. recover after laparotomy when no other operation has been previously attempted. But 25 per cent. recover when other measures have first been unsuccessfully tried, and when the vesico-uterine pouch has been opened. When the rupture opens the vaginal fornices, but one case has recovered, and that by uterine amputation. When the abdominal viscera, with or without perforation, prolapse into the uterine rent, about 30 per cent. recover by operation. Beginning peritonitis was diagnosed by laparotomy in six cases; 85 per cent. recovered by uterine amputation.

Uterine amputation by Porro's method gives especially good results when cervix and vagina are extensively lacerated; when peritonitis has begun; when the anterior wall of the uterus ruptures and amniotic fluid escapes: its results are less favorable when labor is prolonged with escape of amniotic fluid; when other operations have been attempted, uterine amputation gives better results than laparotomy. In general, laparotomy saves 50 per cent. of cases. Regarding the location of the rupture, 60 per cent. of ruptures at the fundus recover; 50 per cent. of ruptures of the anterior wall (which are most frequent) and 34 per cent. of ruptures of the posterior wall.

Entrance of normal amniotic liquid into the peritoneal cavity does not greatly militate against recovery; good contraction of the uterus is especially necessary. Manipulation of the rupture, entrance of macerated fœtus and decomposed amniotic liquid into the abdomen, render the prognosis unfavorable.

Schaeffer reports the case of a multipara, face presentation, rupture of the uterus following efforts at forceps delivery. Admitted to hospital (Munich) three hours after rupture. Examination revealed the fœtus dead; pelvis normal; a longitudinal and transverse rent in the anterior uterine wall, with separation of the peritoneum; a sub- and retro-peritoneal hæmatoma; the fœtus entirely in the peritoneal cavity; the urine bloody. Fœtus and placenta were removed by laparotomy; an extra-peritoneal effusion of blood was found extending to the kidneys; in the anterior uterine wall a rent two and three-quarters inches long extending obliquely to the left; the peritoneum was torn transversely. It was found necessary, to check hemorrhage, to amputate the uterus, remove tubes and ovaries, and stitch peritoneum and decidua over the stump, which was dropped. Death followed on the seventh day in collapse and vomiting. Post-mortem examination revealed the source of the fatal sepsis; blood from a subperitoneal extravasation near the cæcum had been infected through rents in the peritoneum when the child escaped from the uterus. From this focus infection had invaded the abdomen.

#### RUPTURE OF THE UTERUS; SUPRA-VAGINAL AMPUTATION; RECOVERY.

COE (*New York Medical Record*, November 2, 1889) reports the case of a robust woman, aged twenty-three years, in whom rupture of the uterus had occurred two hours before he was summoned. The patient was in collapse, and could not be removed from a dirty tenement. Laparotomy revealed rupture through the left broad ligament and lower uterine segment; the head was in the left iliac fossa. In the absence of an écraseur a rubber tube was drawn about the cervix and secured with artery forceps, and the uterus amputated. The left utero-sacral ligament had been torn and was secured; the torn peritoneum was stitched with catgut, and the abdomen was flushed with hot water. The stump was secured in the wound with knitting-needles.

Recovery was complicated by fever; diarrhœa; hæmatocele of the left broad ligament, and cervico-vesico-vaginal fistula. The patient got up at the end of the fourth week, and the abdominal wound closed at the end of the fifth week.

Coe considers uterine amputation the only procedure offering a chance for recovery in uterine rupture after prolonged and unsuccessful attempts at



delivery. He appends a table of thirteen cases by different operators, showing a maternal mortality of  $69\frac{2}{10}$  per cent., and foetal mortality of 100 per cent.

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#### EXTIRPATION OF THE UTERUS FOR RETAINED PLACENTA WITH SEPSIS.

ROOSENBURG (*Nederlandisch Tidschrift voor Geneeskunde*, 21, 1889) reports the case of a patient who miscarried at six months, the placenta being retained. Septic infection followed, and, failing to remove the placenta, Roosenburg extirpated the uterus through the vagina as a last resort. In two hours after operation the patient's temperature fell from  $105^{\circ}$  to  $99^{\circ}$  F. and remained; the pulse steadily improved; recovery was complete in fifteen days. The placenta was tightly adherent to the uterus, and the uterine wall was in beginning gangrene.

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#### CURETTING THE UTERUS IN PUERPERAL INFECTION.

PORAK (*Journal de Médecine de Paris*, No. 38, 1889) has collected 326 cases of abortion, in which fever occurred in 10 per cent. and death in  $\frac{3}{10}$  per cent. Delivery was artificial in 25 cases, 16 of which had no complications. Treatment of these cases was prophylactic asepsis in the great majority. In a few cases in which intrauterine douches were unsuccessful the curette and douche were employed, but generally to no advantage. Porak believes that the curette, if used at all, should be used promptly, and that it is generally inferior to the simple douche; occasionally it gives brilliant results.

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## GYNECOLOGY.

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UNDER THE CHARGE OF

HENRY C. COE, M.D., M.R.C.S.,  
OF NEW YORK.

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#### FIXATION OF THE RETROFLEXED UTERUS AFTER REPLACEMENT, ACCORDING TO SCHÜCKING'S METHOD.

THIEM (*Centralblatt für Gynäkologie*, October 19, 1889) describes the operation as he is accustomed to practise it, with a slight modification of the original technique. He first introduces a catheter into the bladder and pushes it to the left, where it is held by an assistant. Schücking's needle is then introduced into the uterus and is passed through the anterior fornix, is threaded, and is withdrawn, the ligature being tied in the vagina and left *in situ* for a few days. A Thomas's pessary should be introduced at once to support the uterus. The operation is not suitable for cases of prolapsus. Schücking's and the writer's recent cases (thirty-six) have all been successful. In one instance two years have elapsed since the operation, and the uterus still remains

in good position. One patient has had a normal labor without a recurrence of the displacement.

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#### THE INDICATIONS FOR DILATATION OF THE CERVIX UTERI.

STOCKER (*Frauenarzt*, October, 1889) concludes a paper on this subject with the following deductions: 1. The cervical canal should be dilated in women who have passed the menopause, and have hemorrhage which is clearly of intra-uterine origin; 2. In younger women in whom no sufficient cause for the hemorrhage can be discovered in the adnexa; 3. Whenever the curette is used; 4. In all forms of chronic endometritis requiring thorough treatment.

The writer prefers Vulliet's method of dilating the uterus, by using tampons of iodoform gauze.

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#### VENTRAL FIXATION OF THE PROLAPSED UTERUS.

MÜLLER (*Centralblatt für Gynäkologie*, October 26, 1889) has performed this operation in twelve or fifteen marked cases of prolapsus with unsatisfactory results. In most cases there was sooner or later recurrence of the displacement, usually due to stretching of the adhesions to the anterior abdominal wall. In a few instances the wall itself was drawn down, forming a cup-shaped depression.

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#### PLASTIC OPERATIONS FOR THE CURE OF PROLAPSUS UTERI.

FEHLING (*Centralblatt für Gynäkologie*, October 26, 1889) does not approve of performing anterior colporrhaphy simply as an adjunct to other operations on the cervix and vagina. He thinks that a better result is obtained by doing the operations at different times, keeping the patient in bed for four or five weeks if necessary; this allows the uterine supports time to recover their tone and thus insures retention of the organ in its normal position. In performing anterior colporrhaphy he denudes two oval surfaces on the anterior vaginal wall, half an inch apart, the long axes of which converge toward the cervix; these are brought in contact with wire or silk sutures. Colpo-perineorrhaphy is performed at a second sitting. The writer reported sixteen cases, all of which were successful.

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#### NORMAL AND ABNORMAL CHANGES OF POSITION IN OVARIAN TUMORS.

FREUND (*Centralblatt für Gynäkologie*, October 26, 1889) says that while an ovarian tumor is small it lies normally behind the uterus, elevating that organ slightly and pushing it somewhat toward the opposite side of the pelvis. The pedicle lies on the anterior aspect of the tumor, and is not twisted. In the second stage of its growth the cyst rises into the abdominal cavity and moves forward until it lies in contact with the anterior abdominal wall. The uterus is pushed backward, but is not retroflexed, and the bladder is compressed from above; the pedicle now lies behind the tumor, and is somewhat twisted.

Deviations from this normal course are noted in the following cases: 1. Intra-ligamentous cysts, or those which are rendered immovable by deep intra-pelvic adhesions; 2. Fixation of the uterus by adhesions; 3. Double ovarian tumors, which mutually prevent change of position; 4. Firm and

unyielding abdominal walls, which do not relax as the tumor presses against them.

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#### STATISTICS OF TOTAL EXTIRPATION OF THE UTERUS AT THE DRESDEN CLINIC.

MÜNCHMEYER (*Frauenarzt*, October, 1889) stated at the recent meeting of the German Gynecological Society that between 1883 and May, 1889, there were 110 cases of hysterectomy, 80 being for cancer. Of the latter, four patients succumbed to the operation, while of the remainder 62 were still living, only three of whom had a recurrence.

Freund, in commenting upon this report, stated that in 1878, he had removed a cancerous uterus from a patient who was still perfectly well, and Olshausen said that he had one who had no recurrence twelve years after amputation of the cervix uteri for epithelioma.

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#### THE HIGH-TENSION FARADIC CURRENT IN GYNECOLOGY.

BRÖSE (*Centralblatt für Gynäkologie*, October 19, 1889) recommends this agent highly for the relief of pain due to oöphoritis and perioöphoritis. The anode should be introduced into the vagina, while the cathode is a large plate placed on the abdomen. Bröse uses a bipolar electrode. The *séance* should be prolonged until the sensitiveness of the ovary is noticeably diminished. From four to thirty-five applications may be required. The effect of this treatment is permanent. The writer reports twenty-five cases of oöphoritis and perioöphoritis, twenty-one patients being cured, and two improved. The faradic current is useful in cases of subinvolution and dysmenorrhœa, but has no effect on pelvic exudates, though it relieves the accompanying pain.

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#### PERINEOTOMY; A NEW METHOD OF REMOVING SUBPERITONEAL GROWTHS.

SÄNGER (*Archiv für Gynäkologie*, Bd. xxxv. Heft 3) had a case of dermoid cyst situated in the *cavum subperitoneale*, which he reached and removed from below in the following manner: A vertical section was made in the perineum, extending from a point an inch behind the right labium majus to the right of the anus; the attachment of the levator ani was divided, after opening up the ischio-rectal fossa, and lastly the pelvic fascia, allowing direct access to the subperitoneal space, from which the growth was readily shelled out. The wound was plugged with iodoform gauze and healed rapidly. The writer perfected the operation by experiments on the cadaver, and found that he could easily reach the pelvic cavity through a vertical incision three inches in length beginning just behind either labium and extending downward midway between the anus and the tuber ischii, the levator ani being first divided; subperitoneal tumors, hæmatomata, or exudates could be reached in this way without difficulty.

This operation should be distinguished from that proposed by Zuckerkandl (see *THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES* for December, 1889) for the extirpation of the cancerous uterus. Säger performed the latter on six cadavera and found it so difficult that he did not think that it would ever become popular. Hegar had proposed opening

Douglas's pouch through an incision extending from the tuber ischii to the tip of the coccyx.

Hegar, in discussing the paper, called attention to the difference between perineotomy, exsection of the sacrum, and the parasacral incision of Wölffler. He had successfully exsected the sacrum in order to reach Douglas's pouch and remove diseased tubes and to open pelvic abscesses. The wound healed well and there was perfect drainage.

#### THE TREATMENT OF PELVIC ABSCESS.

WIEDOW (*Archiv für Gynäkologie*, Bd. xxxv. Heft 3) says that it is easier to detect fluctuation in extra- than in intra-peritoneal abscesses. Explorative puncture is dangerous; it is safer to rely on the general symptoms of suppuration. If an abscess lies just beneath the skin, it should be opened thoroughly and drained, while if it is deep within the pelvis, a counter-opening should also be made. To reach deep-seated abscesses it may be necessary to resect the sacrum, to open up the ischio-rectal fossa, divide the levator ani muscle and to split the pelvic fascia (Hegar's method), or to follow the plan suggested by Zuckerkandl. If the peritoneum is healthy and can be pushed upward, it may be advisable to reach the abscess by an incision parallel with Poupart's ligament. It is useless to try to close abscesses with fistulous tracts, except by attacking the focus directly and draining the sac in some other direction.

#### THE FLAP-SPLITTING OPERATION ON THE PERINEUM.

SÄNGER (*Archiv für Gynäkologie*, Bd. xxxv. Heft 3) reported, at the last meeting of the German Gynecological Society, the results of his experience with Tait's operation for the repair of lacerated perineum. He has operated in seventy-one cases, ten times for complete laceration. Anterior colporrhaphy was also performed in twenty-four cases, and posterior colporrhaphy in ten, both operations being done in sixteen. The lacerated cervix was frequently closed at the same sitting. In no case did the perineum fail to unite, though perineo- and recto-vaginal fistulæ were noted in four instances. The parts were restored to their normal condition without loss of tissue. The writer rejects catgut entirely as a suture, and has had better results with silver wire than with silkworm gut.

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LESSONS FROM THE CÆSAREAN OPERATIONS OF  
PHILADELPHIA, 1835-1889.

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THE history of Cæsarean work in Philadelphia—embracing its three different types, “old style,” “Porro,” and “Sänger, or improved”—has far more than a local or even a national interest, for it is a record of most encouraging progress in *laparo-hysterotomy*, once regarded as highly dangerous, if not certainly fatal to the woman, and attended also with considerable risk to the child; but now believed to be far less fatal than many of the capital operations of surgery, provided the subject is in a proper condition to give a fair prospect of success. For many years the fear of a fatal issue had much to do with making the issue fatal, and the surgical work, resorted to when all other expedients had failed, was made to bear a degree of responsibility that properly belonged to the prior management of the labor.

*Delay in operating* has long been charged with much of the fatality that followed the performance of the “old Cæsarean” operation in England and America; but this was only one of several factors that combined to cause the death of the mother, and in many instances that of the child also. Pure delay, that is, a simple waiting for nature without intermeddling, is a far less dangerous factor than futile attempts to deliver by the forceps, version or craniotomy, so often the accompaniments of delay.

*Promptness in operating*, where the foetus is vigorously alive, and there have been no attempts to deliver, has been shown by careful statistical research to promise far more in our country than in Great Britain, *under*

*the old method.* A strange and almost unaccountable fatality, amounting to seventy-five per cent., had attended the *early* performance of laparohysterotomy in the British Isles up to the time when the Porro and Sänger methods were introduced, and antiseptic precautions were adopted. What these are to accomplish in Great Britain has still to be ascertained, as the tests have as yet been quite limited in number, and not very encouraging: seventeen Porro cases with eleven deaths, and three Sänger's with two deaths, may be very much improved upon in the near future. Promptness in American operations, even when the use of the uterine suture was very exceptional, and antiseptic measures were not employed, saved, by careful calculation, seventy-five per cent. (twenty-one out of twenty-eight) of the women, and eighty per cent. of the children. The two new methods are still under trial in this country, and the later operations, as in England, have given a better promise of success for the future: we have had eleven Porro-Cæsarean cases with seven deaths, and thirty-four Sänger-Cæsarean cases with eighteen deaths. Three were saved out of the last six Porro cases, and six out of the last eight Sänger's. The last five Porro operations of England and Scotland were without a death, and this method may perhaps overcome the tendency to a high mortality in Great Britain better than the improved system of uterine suturing, which latter is certainly the least fatal in Germany, Austria, and America. Italy saved six Sänger cases out of her first eight, and six Porro cases out of her first seventeen. This will endanger the relative status of her national method.

Promptness in the use of the knife is all-important now in securing success, and this is particularly the case where the woman is a rachitic dwarf, because of the much more rapid exhaustion of the latter as a result of labor. As long as the closure of the uterine wound was made to depend solely upon muscular contraction, there being no sutures inserted, so long was it an absolute essential of success that there should be no post-partum inertia produced by uterine fatigue, to cause a gaping of the wound, and an escape of lochia into the peritoneal cavity: hence the importance of prompt action under the old operation. Promptness now is important because long-continued uterine action has a tendency to produce tissue-changes that are antagonistic to an early healing of the wound. This early union is requisite, because if not secured the muscularis will gape open, and although the peritoneum may unite so as to prevent leakage, this will not in all cases secure the deeper cut surfaces against the danger of septic absorption. Uterine hemorrhage, shock, exhaustion, and septicæmia are all favored by delay and rendered less likely to occur by its avoidance: hence a growing disposition on the part of operators not to wait until labor has commenced, and the results of test cases, would appear to strengthen the belief that it is the better plan.

Far worse than delay is futile intermeddling in cases where the difficulty of delivering *per vias naturales* should be recognized by the touch and pelvic measurement. If four accoucheurs are to try their forceps upon a woman at her own home, and members of a hospital staff are to repeat the experiment after her admission, the latter should not look for success under a Säger-Cæsarean operation after a labor of forty-two hours, when the patient is exhausted and has a pulse of 124. The capabilities and requirements of the operation are better understood now than they were in 1885. (See Case 9.)

Craniotomy is growing less and less in favor as the danger of death under the Cæsarean section diminishes; and accoucheurs are more than ever beginning to question the propriety of its repetition upon the same woman, or of performing it at all where the pelvis is too small for the child to be delivered alive. If the woman has gone almost to her full time it may be too late to extract alive a fœtus that might have been delivered and saved at eight months. What is to be done in such a case, and particularly if the parents are determined not to submit to fetal destruction? Some appear to think that their wishes should not be considered. I am not prepared to say this, and especially since I once advised the Cæsarean section in such a case, and seventeen months later, the induction of labor at eight months, both of which were successful, the second child weighing thirty and one-half ounces less than the first. It was claimed that the first child could have been born alive naturally; but this has been disproved by the fact that the much smaller one required a labor of twenty-seven hours and a high-forceps delivery. Both children were females, and the first of average size. (See Case 13.)

In view of the almost universal adoption of uterine suturing at the present day, it appears strange to us that the method was so strenuously opposed in all countries from 1769 down to almost a century later (1867) when two women were saved by it in New Haven and New Orleans within a period of five weeks. Certain European obstetrical autocrats held a conjectural idea that it must be a fatal expedient to sew up the uterine wound, and hence by a vigorous opposition had the power for a long period of preventing its being tested, although the initial experiment of 1769 was not fatal, and a very large majority of the cases left to nature resulted in death. Even where this additional security was adopted, timidity in use is shown by the fact that in most cases only from one to four stitches were taken, and this is particularly true of the work in our own country down to 1874, when as many as ten were used by a Georgia operator, whose example was lost to science in the fact that he did not report the case for eleven years, or until he had had a second operation, which, unlike the first, proved fatal.

The first case of deep and superficial multiple uterine suturing in Philadelphia was that of Dr. Thomas M. Drysdale, in 1884: see Case

8 in table. This was the twelfth in chronological order in the world, and the third in the United States: it was also the sixth to prove fatal, and the third for our country: the German record up to that time having shown eight cases with two deaths. The fatality of two of the American cases was due to conditions existing at the time of the operation; and that of the other to the addition of the existence of erysipelas in the hospital.

The early trials of the Säger method and its simplifications in the United States were far from encouraging in their results, although the operators had the wisdom to see that prior conditions rather than the surgery were at fault in their misfortune. The progress of improvement may be shown in a few words: there were three saved out of the first ten; five out of the second ten; and six out of the third ten.

The Porro-Cæsarean operation was first performed in Philadelphia on August 16, 1880, by Prof. D. Hayes Agnew, in the case of a woman five days in labor and only six months pregnant: she died in sixty-four hours, of vomiting and exhaustion. The foetus not having been of viable age the case belongs to the second classification of Godson, and does not appear in my chief tabular record. Excluding this premature case we have a record of eleven Porro cases in the United States, three of which were in Philadelphia. Case 2 (of Philadelphia) and cases 8, 9, and 10 of our country recovered, and seven of the eleven children were saved. Our American Porro record is one of the worst in the world, and is only exceeded by that of Scotland, which has lost four out of five cases. Progress is shown, however, by the fact that three of the last four operations in our country were successful. This is not due to an increase of skill, but to the fact that the cases were in a more favorable condition for the operation. The progress of improvement throughout the world is still more remarkable, as there were, as far as has been ascertained, only four deaths out of twenty-eight cases in the year 1888, or one in seven. There were twenty-two lost out of the last one hundred.

The Säger-Cæsarean work of Philadelphia has done credit to its operators in all the cases where the prior condition of the subjects gave any reasonable hope of success, and it is much to be regretted that all had not an equal opportunity of manifesting their ability to save life, for in this event there should not have been a single death. Personal acquaintance with the cases enables me to speak confidently on this point, and to express my sympathy for those who deserved success but failed in its attainment. There are two conditions which in general terms determine an unfavorable result; one is the state of health of the woman prior to labor, as in the cases of cancer, abscess, spinal caries, etc.; and the other is that produced by dangerous delay and intermeddling after the labor has commenced: one is unavoidable, and the other in most instances unpardonable. Fortunately for the cause of science and humanity,



obstetricians, especially in our large cities, are learning the requirements of the improved Cæsarean operation, and that an important one is, a fair condition of the subject. If the old adage, "meddlesome midwifery is bad," ever had a proper application, it was to cases in which Cæsarean delivery might possibly become a requisite measure. With those who have most carefully considered all the requisites for success it is becoming, nay, has become with some, a question of vital moment whether or not a woman whose condition is known to demand a Cæsarean section shall be allowed to get into labor before the knife is used. In cases of cancer of the cervix, and of intra-pelvic tumors obstructing the delivery, I believe that success will be more certain, and convalescence more uninterrupted, if the woman is operated upon a few days before gestation is complete, and the same view may in time be made to apply to all elective operations. It is a mistake to suppose that a uterus not in actual labor will fail to contract properly and rapidly when the foetus is removed: tests practically made in this city show us that there need be no fear on this point.

Hemorrhage from the uterine wound is generally most active while the knife is being used and the steps are taken for the removal of the foetus. If the placenta is under the line of incision the loss of blood is as a rule greater than where it is located at the back of the uterus; but there are exceptions to this and directly the opposite may be the case. As the blood-loss favors septic absorption and an attack of crural phlebitis as well as the prolongation of convalescence, it ought to be prevented by cervical compression, either manually applied by a strong assistant or by the use of the elastic tubing of Esmarch. Tubing compression has a tendency to paralyze the uterus and should not be continued after the organ is well contracted. In exceptional cases, where there is an unusual tendency to hemorrhage, it may be necessary to continue the use of the tubing until all of the deep-seated uterine sutures shall have been tied. In anæmic cases and dwarfs special care should be taken in preventing the loss of blood, as such subjects are long debilitated by hemorrhage, even when not excessive, and their convalescence is slow and tedious.

The experience of Philadelphia operators is in favor of opening the uterus *in situ*; and bringing it out of the abdominal cavity after it has been emptied, for greater facility in using the sutures. The whole operation, to the tying of the last abdominal stitch, may be performed in twenty-five minutes; but, to do this, the operator should not thread a needle. Rapidity in operating depends mainly on the economy of time practised in sewing up the uterus and abdomen; and is of advantage to the patient in shortening the period of anæsthesia. The abdomen and uterus may be opened and the child delivered in less than two minutes, and is said to have been done in one; but to close the uterine wound properly, requires much more time—*i. e.*, five or six times as long. The uterus should be sutured in two rows, deep-seated

and superficial or peritoneal, as recommended by Dr. Max Sänger, of Leipzig, and the stitches should all be interrupted. For the peritoneal row, the intestinal suture of Lembert gives the best security against leakage and promotes an early union. The uninterrupted or continuous suture has a tendency to slacken when the wound shortens under uterine contraction. The experience of this city favors the use of carbolized Chinese silk as a suture material; and the general opinion is, that there should be four or five stitches to the inch, about one-half of them being superficial. All animal sutures have a tendency to stretch and to become untied; the best is the chromic-acid catgut. Where this is used, the knots may be secured by passing through them a fine silk thread, and tying it.

After the sutures are all in and *counted*, the abdominal cavity should be cleaned out by irrigating with hot distilled water ( $105^{\circ}$  to  $110^{\circ}$  Fah.), which has the additional advantage of reviving the patient from the shock of the operation. There is no occasion to insert a drainage-tube, as there should be no escape of fluid into the peritoneal cavity, if the uterus has been properly sewed up; in fact, the tube is objectionable, because it delays union and has a tendency to favor the production of hernia. If the woman has a settled cough, or continues to vomit after a week has passed, her abdominal sutures should not be removed for ten or twelve days, and then the abdomen should be supported by adhesive strips. Having seen a case where the abdominal wound was torn open by an attack of coughing and straining, I have given these precautions. It should be remembered that new tissue is very weak, and that a restored perineum has been torn open in Philadelphia by straining to pass long-retained excrement, twelve days after the operation.

The time required for convalescence varies with each case, and will depend much upon the general health of the woman. Under the old Cæsarean operation, in 1835, Mrs. Reybold's abdominal wound was not fully healed until sixty-six days had passed; but under the improved method Mrs. Schultze (Case 15) was well enough to travel 200 miles on the nineteenth day, without detriment.

Cæsarean women will sometimes nurse their children as well as those that have been delivered by the natural way. This has been the case with two old Cæsarean, one Porro-Cæsarean and two recent Sänger cases in Philadelphia, one of which last has now, at the end of six months, an unusually large and fat male child. If the woman is healthy and has no drawbacks in her convalescence, she should be able to nurse, although her milk may be late in coming—*i. e.*, not until the fifth or sixth day. If she should have an attack of peritonitis, or crural phlebitis, her milk will be likely to fail. If crural phlebitis should appear, it may confine itself to one leg, or may appear in the second, either early or much later than the first. In my experience, it is most likely to appear, when it does, during the third week, or about the

fifteenth to the seventeenth day; I have known it to appear on the thirtieth day, and as late as the sixth week. It has followed both Porro and Sänger operations in this city and New York, and was indirectly (by cardiac embolism) the cause of death in the initial American Porro case, under the late Prof. Isaac E. Taylor, of New York. From what I have seen in private and hospital cases, crural phlebitis must be a not infrequent sequel of Cæsarean delivery, although rarely a cause of death, and for this reason seldom reported.

Two questions of scientific interest are yet to be settled: 1. If a uterine suture is composed of perfectly pure silk, can it entirely disappear by absorption? 2. Is the uterus at all likely to rupture in a subsequent labor in the line of a cicatrix formed under the improved Cæsarean operation? The first query can only be determined by the microscope. It is claimed that the silk is not absorbed, but that proliferations of new tissue divide it up into its original fineness and spread it among the muscular fibres. Is it certain that these fibres of silk, so called, are not cotton? Under the old operation, the uterine cicatrix was apt to be thin and weak, and a number of cases are recorded where rupture took place subsequently; although in some instances children were born in the interval without accident. A rupture cicatrix has been known to give way as many as three times in subsequent labors, in order, and the woman recover. But the intimate union under the Sänger operation should be far safer than the imperfect one under a rupture, or where the wound was left to nature's closing, after an operation.

The existence of cancer of the cervix or vagina does not appear to influence the healing process in the uterine wound; and such cases, when not far advanced, are more likely to recover than where the subject is a small rachitic dwarf. The cancer cases in England have been much the most successful, according to Dr. Radford's tables. In cases of fibroid obstruction, on the contrary, there may be mural degeneration in the line of incision, seriously interfering with the process of union, as in the Drysdale case, No. 8. If one or more small fibroids are bisected in making the uterine incision, they should be removed by resecting a portion of the muscularis, as these small tumors are apt, when divided, to suppurate and give rise to septic infection. Cases might be cited to prove this danger, and the value of the resection. Subperitoneal fibroids should not be enucleated, as a general rule, in Cæsarean cases, as this procedure may increase the danger of sepsis, particularly in a Porro operation. Supra-vaginal exsection of the uterus and ovaries should have an atrophic effect upon cervical fibroids.

Hospital treatment, with its forced ventilation, trained nurses, and antiseptic management, is to be preferred to that usually attainable in the private houses of the class of patients requiring Cæsarean delivery. Cases among the poor, when thought hopeful, have in a number of

instances in our country been lost through exposure, errors in diet, and ignorance in nursing. Until within a few years, the hospital mortality in the United States was greater than that of the private house, especially when the latter was located in a village or upon a farm; but now the operator finds that he is more likely to succeed in the ward or single-room of a well-appointed maternity, where he can be sure of proper care and diet as directed by himself. Of the last six operations in this city, five were in four hospitals, and one in a two-story private house, with but one large chamber, open front and back, and the building set back from the street. All of these six women recovered from the operation, and all of their children were living.

The first elective Porro-Cæsarean operation of Philadelphia (Case 5) was performed at eight and a half months, and before labor, and saved both mother and child. It was the sixty-fifth case in chronological order, and the twenty-eighth success, showing a mortality of fifty-seven per cent., which we should now regard as frightfully high, for under the last sixty-five operations, as far as recorded or communicated, there were but thirteen women lost, or exactly twenty per cent.

Another application of supra-vaginal exsection of the uterus and ovaries, as recommended and initiated by Prevôt of Moscow, was tried in this city in a desperate case of ruptured uterus, by Dr. Mordecai Price, on April 12, 1889, and resulted in death in thirty minutes. In eleven years this operation, as here applied, has been performed in the world fourteen times with nine deaths, a mortality of nearly sixty-five per cent. But two trials, as far as known, have been made in the United States, the second of which, under Prof. Henry C. Coe, of New York, on September 8, 1889, saved the life of the woman. As this has been repeatedly called, in error, a Porro operation, I propose to examine its credentials as we advance, and its claims as a curative measure.

Laparotomy, with removal of the fœtus and secundines with blood and amniotic fluid, has been twice performed in Philadelphia in cases of ruptured uterus, under the late Drs. John Neill and William Byrd Page, respectively, and both women recovered, although in neither instance was the uterus sutured. Where the state of the woman will admit of it, and this will only be in exceptional cases—even then the treatment of Prevôt will not be likely to do better than to deliver by laparotomy, cleanse the abdominal cavity by irrigation, trim the ragged edges of the uterine wound, and sew it up with carbolized silk. The fact is that rupture cases are so rapidly brought to a state of collapse by shock and hemorrhage, that in only a small proportion can surgery be made to avail anything. When it can be, the treatment by uterine exsection should only be used in cases where the character of the tear and its location make its choice imperative, and particularly where there is a pelvic deformity to warrant the mutilating measure.

One of the inconveniences of an unscientific nomenclature is shown

by the frequent misapplication of the terms "*Porro*" and "*Cæsarean*," found in the reports of discussions in American and English obstetrical societies upon the proper treatment of rupture of the uterus. Supra-vaginal amputation of the uterus may or may not be a Porro operation, according to circumstances. If there is performed a puerperal laparo-hysterotomy, *completed by a supra-vaginal hysterectomy*, then there is a true Porro operation, and not without. If the abdomen and uterus *are both incised* and a fœtus is removed from the latter, the operation is a true Cæsarean, and in no other case. If the fœtus is extra-uterine, there can be no laparo-hysterotomy, or Cæsarean section, practised for its removal; so, likewise, if the uterus has been opened by laceration and the fœtus is in the abdominal cavity, or is even delivered through the rent, the section is only a laparotomy. Supra-vaginal hysterectomy was practised years before Prof. Porro performed it upon a parturient woman to save her and her child; he *applied* it to diminish the danger of the old Cæsarean operation, and his name was given to the *application*. If we cannot call a special section "*Porro-Cæsarean*," we cannot correctly give the Porro name to it. If, then, a woman has ruptured her uterus and supra-vaginal hysterectomy is resorted to, after the dead fœtus is removed by abdominal section, the *application* is not that of Prof. Porro, and it is an error to call it by his name; it has three times the mortality, and does not save a fœtus. If, for convenience, it *must* have an operator's name, call it *the Prevôt method of treating uterine rupture*, after him who first applied it. We have, then, puerperal laparo-hysterotomy (Cæsarean section); laparo-hysterectomy as complete of the Cæsarean section (the Porro operation); laparo-cystotomy or cystectomy in ectopic pregnancy; and laparo-hysterectomy in cases of ruptured uterus (the Prevôt method of treatment). The question to be considered by societies is, Shall we treat rupture of the uterus by laparotomy and uterine suturing; by supra-vaginal exsection of the uterus and ovaries; or by antiseptic drainage of the uterus through the vagina? In two exceptional cases on record, the Cæsarean operation *was* performed after uterine rupture. In one, a small rupture was enlarged by the knife; and, in the other, the peritoneum was not torn, and required incision. In the latter case the child was saved. When we consider how many ruptured uteri there must have been in our chief cities during the last decade, we are surprised to find in how very few cases the abdomen has been opened in the effort to save life. Surely the successes in cases of ruptured tubal pregnancies should lead to surgical efforts to save life where the uterus has been ruptured during pregnancy or parturition. Dr. Coe is very much to be congratulated upon the success which attended his case, in which the choice of operations was made of necessity after the character of laceration was fully determined by laparotomy. Had the tear been a favorable one, he could have saved the uterus by careful multiple suturing, as in the Säger-Cæsarean closure.

## CÆSAREAN OPERATIONS, "OLD STYLE," "PORRO," AND

No.	Date.	Operator.	Form of operation.	Age.	Color and nativity	Height	Conjugate diameter.	Number of pregnancy.	Hospital or private practice	Cause of obstruction to labor.
1	Mar. 25, 1835.	William Gibson,	<i>Old</i> : Uterus not sutured.	26	White, Irish.	4 ft. 8	1 $\frac{3}{4}$ in.	Third, 2 embryotomies.	P.	Rachitic deformity of pelvis.
2	Nov. 5, 1837.	William Gibson,	<i>Old</i> : Uterus adherent to abdominal wall.	28	White, Irish.	4 ft. 8	1 $\frac{3}{4}$	Fourth, same case as No. 1.	P.	Rachitic deformity of pelvis.
3	Sept. 17, 1869.	Walter F. Atlee,	<i>Old</i> : Uterus not sutured.	31	White, Irish.	?	2	Third,	P.	Rachitic deformity of pelvis.
4	Feb. 27, 1878.	R. G. Curtin,	<i>Old</i> : Uterus closed by five cat-gut sutures.	20	Black, U. S.	4 ft. 3	2	First,	H.	Rachitic deformity of pelvis.
5	Sept. 22, 1880.	E. Richardson,	<i>Porro</i> : Stump held out by two crossed pins.	25	White, U. S.	3 ft. 10	2	First,	P.	Rachitic deformity of pelvis.
6	Mar. 5, 1883.	Anna E. Broomall,	<i>Old</i> : Uterus sutured with silver wire and silk.	22	Black, U. S.	5 ft.	2 $\frac{3}{8}$	First,	H.	Rachitic deformity of pelvis.
7	June 30, 1883.	Wm. H. Parish,	<i>Porro</i> : Müller method, as in Case 5.	40	White, U. S.	4 ft. 3	3	First,	H.	Rachitic deformity of pelvis.
8	Nov. 12, 1884.	Thos. H. Drysdale	<i>Singer</i> : 11 deep and 11 Lembert sutures of silk in uterus.	35	White, German	.....	.....	First,	P.	Uterine fibroid blocking up the pelvis; mistaken for an extra-uterine foetal head.
9	Sept. 20, 1885.	Wm. H. Parish,	<i>Singer</i> : 11 deep and 4 superficial silk sutures in uterus.	35	White, German	.....	.....	Third,	H.	Three fibroids blocking up the lower segment of the uterus.
10	July 15, 1886.	E. Richardson,	<i>Old</i> : Uterus closed with silk sutures.	30	?	.....	.....	?	H.	Dying of cerebral apoplexy with foetus alive.
11	Mar. 21, 1887.	Chas. M. Seltzer,	<i>Porro</i> : With enucleation of subperitoneal fibroid of cervix.	41	White, U. S.	5 ft. 7	.....	First,	P.	Tumor filling lower pelvis; os out of reach; growth size of large foetal head.
12	April 17, 1888.	Howard A. Kelly,	<i>Singer</i> : 12 deep and 12 Lembert silk sutures in uterus	25	White, U. S.	4 ft. 6	2 $\frac{1}{4}$	Fifth, 4 miscarriages.	P.	Infantile pelvis; no traces of rickets; hands and feet very small.
13	May 30, 1888.	Howard A. Kelly,	<i>Singer</i> : 12 deep and 17 Lembert silk sutures in uterus.	26	White, Irish.	4 ft. 8	2 $\frac{3}{4}$	Third, one very small lived.	H.	Generally contracted pelvis; relative indications; parents oppose craniotomy.
14	Mar. 13, 1889.	William Goodell,	<i>Singer</i> : 14 deep and 17 Lembert silk sutures in uterus.	32	White, U. S.	.....	.....	Thirtieth, 4 miscarriages.	H.	Cancer of cervix uteri involving bladder and rectum.
15	May 10, 1889.	Howard A. Kelly,	<i>Singer</i> : 8 deep and 13 superficial silk sutures in uterus.	34	White, German	.....	Space $\frac{3}{4}$ in.	Fifth, 4 dead.	H.	Sacral tumor of seven or eight years' growth, filling the pelvis.
16	May 12, 1889.	Anna E. Broomall,	<i>Singer</i> : 6 deep silver-wire sutures and 14 Lembert of silk in uterus.	27	Black, U. S.	4 ft. 10	3 $\frac{8}{16}$ inf'r strait contracted	Eighth, 7 dead.	H.	Generally contracted pelvis, especially marked at inferior strait.
17	Oct. 8, 1889.	Chas. M. Wilson,	<i>Singer</i> : Many deep and superficial uterine sutures of silk	28	White, U. S.	.....	.....	Fifth, 4 died in infancy.	H.	Abscess in posterior wall of vagina, probably syphilitic.

## CLASS 2.—UTERO OVARIAN AMPUTATION BEFORE

No.	Date.	Operator.	Form of operation.	Age.	Color and nativity	Height.	Conjugate diameter.	Number of pregnancy.	Hospital or private practice.	Cause of difficulty.
18	Aug. 16, 1880.	D. Hayes Agnew,	<i>Porro</i>	44	White.	.....	.....	.....	P.	Fibro-myoma of uterus blocking up the pelvis.

## "SANGER OR IMPROVED," PERFORMED IN PHILADELPHIA.

Time in labor before operation.	Condition of woman at time of operation.	Result to woman.	Result to child.	Time of survival and cause of death in woman.	Time of survival of child.	References.
12 hours.	<i>Favorable.</i>	<i>Recovered.</i>	Lived, female.	Lived to 76; died August 15, 1885; autopsy same day; pelvic measurements confirmed.	Living in 1889; has borne 8 children; is now 54	Am. Jour. Med. Sci., vol. xvi. p. 343, 1845.
10 hours.	<i>Favorable.</i> Excited, pulse 112; fell to 88 after operation.	<i>Recovered.</i>	Lived, male.	Outlived 13 doctors who saw one or both operations.	Died of phthisis, Oct. 4, 1881, aged 43, leaving 2 grown daughters, now married.	Am. Jour. Med. Sci., xxii. 13, 1838. <i>Autopsy</i> : op. cit., p. 422, 1885 (writer pres.).
Several hours.	<i>Favorable.</i>	Died.	Lived, female.	Died in six days from obstruction of bowels; was not re-opened for relief, as is now done.	Living in 1889.	Am. Jour. Med. Sci., p. 393, April, 1870.
24 hours. Dr. C. called after 18 hrs.; sent to hosp. Not in labor; 8½ months pregnant.	<i>Unfavorable</i> , by reason of delay in calling in the operator. <i>Favorable.</i>	Died.	Lived, male, 7½ lbs.	Died on seventh day; slight peritonitis; fibrinous heart-clot; wounds both gaped open.	Died in summer of 1879 of diarrhœa; was over 18 months old.	Am. Jour. of Obstet., p. 613, 1878.
36 hours.	<i>Very unfavorable</i> ; pulse 180; temp. 102° Forceps used before admission.	Died.	Living, male.	Died in 35 hours of septic peritonitis; uterine wound found united.	Died in 32 hrs.; right parietal bone fractured by use of forceps.	Am. Jour. Med. Sci., p. 36, Jan. 1881. <i>Autopsy</i> : Am. Jour. Obstet., vol. xvi. p. 534, 1883 (writer present at operat'n).
Not in labor; 8½ months pregnant.	<i>Unfavorable</i> ; urine quite albuminous, showing tube-casts.	Died.	Living, male.	Died in 42 hours of exhaustion and nephritis; kidneys affected with Bright's disease.	Died in 19 days of inanition.	Am Jour. of Obstet., vol. xvi. p. 1197, 1883 (writer present at oper'n and autopsy).
8 days irregularly; labor on Nov. 4, 5, 8, 9, 10, 11, and 12.	<i>Almost hopeless</i> ; pulse 124; ante-partum hemorrhage.	Died.	Dead, and macerated.	Died in 26 hours of septiciæmia; uterine peritoneum united; muscularis not.	.....	Medical News, p. 631, Nov. 26, 1887 (writer present at operation).
42 hrs.; forceps tried by four men before entering the hospital. Not in labor. foetus 7 mos	<i>Very unfavorable</i> ; pulse 124; much exhausted by efforts to deliver.	Died.	Dead, and putrid.	Died in 12 hours of exhaustion and septiciæmia.	.....	Trans. Am. Gynecol. Soc., p. 424, 1886.
Slight pains occasionally for 18 hours.	<i>Worn out and anxious</i> , otherwise general physical condition good.	Died.	Dead, and macerated; male.	Lived 4 days; "heart failure; possibly some septiciæmia; little pus found on autopsy."	.....	Communicated by the operator, July 19, 1886.
2 weeks; waters broken 4 days.	<i>Very unfavorable</i> ; pulse 142; exhausted; had been no attempts to deliver.	<i>Recovered.</i>	Living, male. 5 lb. 15 oz.	Alive and well in June 1889; posterior lip of cervix sloughed away; crural phlebitis; stenosis of cervix.	Died in 7 days of jaundice; it was barely alive when delivered, and was hand fed.	Trans. Am. Gynecol. Soc., vol. xiii. p. 130, 1888 (writer present at operation).
Not at full term; labor induced.	<i>Favorable</i> ; pulse 96.	<i>Recovered.</i>	Lived, female. 6 lb. 15 oz.	Living and well in Nov. 1889; nursed only a few days; had sore nipples and crural phlebitis.	Died Aug. 15, 1889, of pneumonia, aged 14½ months.	Trans. Am. Gynecol. Soc., vol. xiii. p. 132, 1887 (writer present at operation).
Not in labor.	<i>Favorable</i> ; anæmic from hemorrhages; hopeful.	<i>Recovered</i> from oper'n	Lived, male, about 6 lb.	Died of hemorrhage from the cancer on April 7, 1889; was able to nurse about two weeks.	Died a little over 2 months old, soon after going to a home for children.	Med. News, p. 337, March 30, 1889. <i>Autopsy</i> (writer present at operation).
Not in labor.	<i>Favorable</i> ; general health good; spirits likewise	<i>Recovered.</i>	Lived, male, 7 lb.	Able to nurse; up in two weeks; went home 200 miles on the 19th day; doing well at 6 months	Living and doing well when heard from 6 months after he was taken to Yagerstown, Pa.	Communicated by the operator (writer present at operat'n)
Labor just begun; had been in hospital two weeks 2 days.	<i>Favorable.</i>	<i>Recovered.</i>	Lived, male, 5½ lb.	Convalescence uninterrupted; nursed from 6th day; less trouble than is usual after a natural labor.	Living and doing well at six months; very large and fat.	Communicated by the operator, May 27, 1889, writer saw patient in her convalescence).
	<i>Very unfavorable</i> ; woman in very delicate health.	<i>Recovered.</i>	Lived, male, 4½ lb. 8 mos.	Convalescence very tedious, and condition at times critical, from prior disease.	Lived until 44th day; was very delicate, and grew but little.	Communicated by the operator (writer saw patient repeatedly during 7 w'ks).

## THE FŒTUS WAS VIABLE, PERFORMED IN PHILADELPHIA.

Time in labor.	Condition of woman at time of operation.	Result to woman.	Result to child	Time of survival and cause of death in woman.	Period of gestation.	Reference.
5 days.	<i>Much exhausted.</i>	Died.	Stillborn and putrid.	64 hours; vomiting and exhaustion.	Six months.	Communicated by Dr. Ellwood Wilson, Accoucheur, 1883

*Special Remarks upon the Cases.*—The record of Mrs. Reybold, the subject of operations 1 and 2, is of historical interest. She was born in Ireland, in 1809; became rachitic in very early childhood; married in Philadelphia at twenty-one; was delivered by craniotomy at twenty-two, after the foetus was dead, and softened by putrefaction, its cranium being picked away; and again, after foetal destruction, at twenty-four; was delivered under Cæsarean section at twenty-six, and again at twenty-eight, and died of old age at seventy-six. She had declined in her second pregnancy to have premature labor induced, and again, when in labor, to submit to the Cæsarean operation. In her third labor the foetus was found to present by the breech, in which position embryulcia would probably have proved fatal, as it nearly did in her first labor. She nursed both of her Cæsarean children, and her milk came on the third day. As far as can be ascertained, Mrs. Reybold's first Cæsarean section was the thirteenth in the United States, and the ninth that ended in recovery. It was performed three years before the first of New York City, which was also a success to the mother, the child being deformed. In the early years of American Cæsarean work, the mortality was much less than at a later period, there having been twelve women saved out of the first twenty, or sixty per cent.

*Case 3* was operated on after an interval of thirty-two years, and should have been a success, as the woman, who was a patient of the late Dr. Hooper, was in good condition, had been in labor only a few hours (I believe six), and did well for four days. A few uterine stitches, as in the cases of Drs. Townsend, of New Haven, and Brickell, of New Orleans, two years before, would probably have saved her. Such cases at the present day are reopened and the intestinal adhesions broken up. It is possible that a loop of intestine may have become strangulated in the uterine wound, as such an accident has been known to occur. In these days of progress in abdominal surgery, cures of strangulation are not confined to cases of hernia.

*Case 4*, 1878, was the first in Philadelphia in which the uterine wound was sutured, and, unfortunately, it was done with catgut, the knots of which became untied, as had repeatedly happened in Europe. The experience of American operators with carbolized catgut in the last ten years has not been such as to recommend it for general use; it has too often been followed by a gaping uterine wound, as demonstrated on autopsy. For a dwarf of four feet three inches, a labor of twenty-four hours was too long to give a hope of success under the old operation, with only seven uterine sutures, and these of catgut.

*Case 5* did great credit to the late Dr. Richardson, as it was the second Porro operation in America, and the first to recover. By operating prior to labor, he saved all the strength of the little woman, and thus secured a successful result. She was subsequently exhibited as a



dwarf-mother in a travelling menagerie, and contracted a hernia by repeatedly lifting her boy in the show.

Case 6 was the first Cæsarean operation performed by a female physician in America, and might have been a success but for the almost hopeless condition of the woman when admitted into the Woman's Hospital, due to long labor and futile attempts to deliver by the forceps. With a pulse of 180 and a temperature of  $102^{\circ}$ , the death of the woman was to have been expected. We know of no earlier Cæsarean operation having been performed by a female graduate of medicine: several cases prior to it are on record where midwives operated with success, and where women delivered themselves by abdominal incision, with a similar result. In Case 16 Professor Broomall met with entire success.

Case 9 will probably not be repeated in this city, as accoucheurs are not so timid with regard to the Cæsarean operation now as they were four years ago. This case has already been referred to as an instance of repeated and futile attempts on the part of many private and hospital physicians to deliver by the forceps so as to avoid the greater risk. An early recognition of the nature and extent of the obstruction might have given the operator a fair chance of success.

Case 12 was a very unfavorable one, from the size of the woman, time in labor, and frequency of pulse; but, fortunately, there had been no attempts to deliver, as the os was undilated. The result in recovery shows the capability of the improved Cæsarean operation, backed by careful after-treatment, in saving life. The posterior lip of the cervix was taken away in four days, in a soft offensive state, by the fingers. The healing of the cervix produced a stenosis of the canal, and a temporary utero-abdominal fistula at the menstrual epochs. This latter no longer exists, and the woman is now fat and well.

Case 13. The operator was in two instances condemned before medical societies, once before he had reported a line upon the case, for not having delivered the woman *per vias naturales*. The reasons for the operation were these: 1. The woman had a conjugate of two and three-quarters inches, did not come under the observation of Dr. Kelly and the writer until gestation was nearly complete. 2. It was true that she had once been delivered of a living child, after a severe labor of fourteen hours, without instruments; but the foetus was *very small and feeble*, and its predecessor of larger growth had been lost, after a labor of nineteen hours, with the aid of instruments. 3. The patient and her husband were strongly opposed to foetal destruction, and preferred the Cæsarean operation for three reasons: 1. They had known of a recovery after the Cæsarean section in their vicinity. 2. They had received a severe shock in the sudden death of a sister of the former, nine months before, after version and decapitation, with the head still *in utero*. 3. They had religious objections, and had been advised against craniotomy by

their priest. Under all these circumstances, I advised the husband to take his wife to the Kensington Hospital for Women, and have her delivered by abdominal section, in a belief that she ought to recover under the Säger method.

The child delivered under the knife was a female of six pounds and fifteen ounces, and not *very small*, as claimed by a condemner. The woman, as I know from frequent personal observations, never had any special time of danger in her convalescence, and the child, for one handed and in hot weather, did well. Both were under the special care of Dr. Noble, who is of the same opinion.

In a fourth pregnancy I recommended the woman to have labor induced at eight months, which was done, and delivery accomplished with much difficulty under the high-forceps operation, after a labor of twenty-seven and a half hours, and the last six hours very severe, under the care of Dr. Charles P. Noble. The child was also a female, and weighed five pounds and one-half ounce, or thirty and one-half ounces less than the one delivered under the knife. Thus was established the fact, that the alternative in the third labor was craniotomy or the Cæsaean section after the improved method, and that delivery by the forceps of a living foetus of the weight given was impracticable.

*Case 14.* This woman was operated upon in the amphitheatre of the University Hospital, before perhaps five hundred students and physicians, and made a good recovery from the operation, as shown by the appearance of the uterus on autopsy. But for the hemorrhage from the cancer, this woman should have lived several months longer. Although only thirty-two years old, she had been married eighteen years and had been pregnant thirteen times.

*Case 16.* I believe this to have been the first successful Säger-Cæsaean operation in the world, under a female M.D. The woman recovered rapidly, and is in robust health now, as is also her boy, who is unusually large and fat. Her convalescence was better than that of the average of women after a natural labor. She has a very much contracted inferior strait, and, it is believed, cannot give birth to a living foetus under induced labor even at seven months.

*Case 17* is yet to be reported by the operator. It was one of unusual interest for a long time, because of the difficulties that attended her recovery from preëxisting conditions due to syphilis, and revealed by copper-colored spots on her arms and legs. She had a severe cough, profuse expectoration, vomiting, purulent discharges from the rectum and vagina, and later, a diarrhœa, with a range of temperature from 96° to 103°, and a pulse up to 140. Repeated visits during several weeks have satisfied me of the greatly diminished danger *per se* of the improved Cæsaean operation, as shown by the recovery of this woman. With a widely open abdominal wound, torn open by coughing and

vomiting after primary union and the removal of the sutures, her uterus does not appear to have been involved in any serious lesion.

*Directions for operating.*—The instruments, sponges, cloths, and ligatures to be used should all be thoroughly cleaned and rendered aseptic. The hands and forearms, half way to the elbow, of the operator and two assistants, should be likewise treated. It is usual to shave the pubes, as the hairs are the seat of bacteria which washing does not dislodge; but it is not the custom, as it should be, to shave likewise the abdomen, which is covered with minute hairs, and which are capable of giving exquisite torture to the woman when adhesive strips are being removed. The shaving of the abdomen should be done with a very sharp razor, and should extend over all the parts likely to be pulled by the plaster. In setting the strips, those that support the wound should be longer than those that secure the dressing, and the latter should be applied over the former. In removing the upper row, hold the ends of the lower strips and pull from them, so as to avoid pulling directly upon the skin.

The abdominal surface should be washed as for an ovariectomy, and the incision should follow the color-line for about five and a half inches, which will be long enough to admit the passage of an average fœtus, which should be withdrawn by the feet.

Cæsarean-delivered babes have sometimes weighed as high as fourteen pounds; but this is a very exceptional size, as from five to eight pounds is the usual weight. The last six in Philadelphia averaged only six pounds each. The size of the fœtus will depend very much upon the size and condition of the mother and the weight of the father. A rachitic dwarf impregnated by a large man has been known to bear an overgrown fœtus: in one instance in the United States, a woman of forty inches was delivered under the knife of a child of twenty inches that lived.

The spraying process, at one time thought so important in abdominal surgery, is not now used in this city, and those who longest retained it have given it up as dangerous and not required. Washing out the abdomen with weak antiseptic solutions is rarely done, and never should be in a Cæsarean section. Irrigation with blood-warm water, recently distilled, will answer all the purposes of ablution. It should be gently poured in, and not from a height, and may be aided by the use of a fine sponge in a long-stem holder. Hot water may be employed in cases of exhaustion, or where there has been much blood-loss, as a revivant.

There seems to be but little danger of infecting a patient from the air of a clean, well-ventilated room; but much from instruments, hands, sponges, etc., unless previously rendered aseptic. In a cancer case, the woman should not be allowed to get into labor, and the diseased cervix should not be explored during the operation, either from within or *per*

*vaginam*, as this will seriously endanger the subsequent use of the index finger. There is some temptation to test the perviousness of the cervical canal in a case where there has been no labor, but a little reflection will show its impropriety. The canal will generally be found open, as cancer of the cervix chiefly exists in multiparæ and in those that have had a laceration: should the canal be found closed, after the dressing, it may be gently dilated for drainage.

It is of interest, in connection with this work of Philadelphia, to state what is being accomplished throughout the world in general, as thus far ascertained, under the Porro and Säger methods. It is very unfair to either method, to calculate its prospective results by the percentage of deaths standing against it. The fatality of an operation should be considered in reference to the surgery *per se*, and to the fitness of the patient to endure the trial under the knife. In the year 1888, there were 71 Säger-Cæsarean operations, with 15 deaths, and 28 Porro-Cæsarean operations, with 4 deaths. This would make it appear that the Porro method is the less dangerous of the two; but is it so? In Germany, but 13 women died out of 98 under the Säger method, and of the 13 some must have been regarded as almost beyond hope, when operated upon. I believe that the possibility of success may be increased to ninety per cent. Two single rachitic girls of seventeen and eighteen years of age were operated upon this year in the same hospital at Melbourne, Australia, under two surgeons, each being alternately operator and assistant. One woman recovered and made an excellent convalescence, while the other died; why? Because one was in good condition after a short labor, and the other in a very bad one after a long labor. Take a hundred cases like the first, and we ought to expect ninety to recover under favorable surroundings. The greater the proportion of cases like the second the greater must be the mortality in each hundred. Thus far, the Porro cases in fifteen countries number 272, with 150 deaths; and the Säger operations 212, in thirteen countries, with 50 deaths. There have probably been nearly 300 Porro operations to this date, and about 260 under the Säger or improved Cæsarean method; by 1891, they should be about equal in the number of cases.

A HITHERTO UNDESCRIBED FORM OF NEW GROWTH OF THE VULVA.<sup>1</sup>

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It may, I think, be asserted without fear of contradiction, that in no department of medicine is our knowledge in a more unsatisfactory and apparently hopeless condition than that of the so-considered benign hypertrophic lesions of the vulva. There is not in medical history a more striking example of the baneful influence of an essay founded on hasty and false conclusions than is offered by that of Huguier.<sup>2</sup> This observer grouped together nine cases, five of which were personal, of vulvar disease, and in his elaborations upon them built up a disease which he called "esthiomène," or lupus of the vulvo-anal region, and divided it into four varieties. Seeing that it is very probable that most of his cases are instances of old syphilis; that the question of their etiology was wholly unexplored; that their clinical history, though detailed in a most magisterial manner, was based upon the most far-reaching but crude assumptions, it seems strange that his essay was received by the profession. It is probable, however, that the great work which he did in other departments of medicine had much to do with influencing the minds of the profession in his favor, so the errors which his essay contained were accepted as gospel truth by his French contemporaries, and they remain to-day in France practically unchallenged. In England the utterly false views of Huguier are held by many men of prominence, and English contributions to the knowledge of simple vulvar lesions have only tended to perpetuate the French observer's errors.

In America one eminent physician has long stood forth as the apostle of Huguier's tenets, and while others have mildly urged that the French observer was wrong, they have failed utterly to explain the nature and causes of his error, and to throw any new light upon the general subject of vulvar lesions, exclusive of malignant growths.

Succinctly and fairly stated, the following are the views generally accepted to-day as to the origin of simple hypertrophic and ulcerative vulvar lesions:

1. That they are identical in their nature with lupus, euphoniously called esthiomène (a term which should be at once discarded).

<sup>1</sup> Read before the American Dermatological Association, at its thirteenth annual meeting, September 18, 1889.

<sup>2</sup> *Mémoire sur l'Esthiomène ou Dartre rongeaute de la Région Vulvo-anale.* Paris, 1849.

2. That they are the result of essential and specific syphilitic processes in the great majority of instances.

3. That they are due to some indeterminate ulcerative process.

4. That they may be the result of tuberculous infection. (This view is only advanced by a few authors.)

I have no hesitation whatever in saying that, in the main, some of these claims are false and others are only partly true. The reasons of the darkness which hangs over this subject, beyond the malign influence of the Huguier doctrine, are: First, that the subject has not, with one exception, been studied by men thoroughly versed in syphilis and general pathology; and, second, because it commonly falls to the lot of an observer to see one case or only very few cases. The truth is, that a systematic and clinical study of these vulvar lesions has, as yet, never been made; consequently it is not to be wondered at that doubt, uncertainty, and confusion exist.

Many years ago I became convinced of the falsity and worthlessness of Huguier's views and of the necessity of studying this subject *de novo*, entirely untrammelled by the views and theories of others. My most extended studies have been made during the past fifteen years in the rich venereal field of Charity Hospital, but they were undertaken long before that time in other public services held by me. In this paper I shall give only a synoptical outline of my conclusions as to the nature of chronic, deforming vulvar lesions, exclusive of malignant new growths, and shall confine myself to the description of a form which I believe has never before been mentioned or described. These studies warrant me in venturing to offer the following conclusions as to the nature of the aforesaid non-malignant affections:

1. That a large and perhaps the greater number of chronic deforming vulvar affections are due to simple hyperplasia of the tissues, induced by irritating causes, inflammation, and traumatisms. (This view, the truth of which I am positive of, has never before been presented, since all observers seem blind to any but specific or occult causes of these affections.)

2. That chronic chancroids are the cause of a certain proportion of cases.

3. That many cases are due to essential and specific syphilitic infiltrations.

4. That other cases are caused by the hard œdema which often complicates and surrounds the initial sclerosis, and perhaps localized gummatous infiltrations.

5. That many cases are due to simple hyperplasia in old syphilitic subjects, who suffer from chronic ulcerations of the vulva long after all specific lesions have departed.

6. That some cases, also in old syphilitics, are due to simple hyper-

plasia, without the existence of any concomitant ulcerative or infiltrative process, and seem to be caused by conditions which usually, in healthy persons, only result in vulvitis.

7. That some rare cases are those of simple inflammation, resulting from antecedent ulcerative and inflammatory conditions.

The facts contained in these propositions will, I am convinced, fully and satisfactorily explain all of these seemingly mysterious cases. I may here remark that I have never seen lupus, as we understand that disease, upon the female genitals, though I have sought for it carefully. Further investigations may prove that tuberculous infection may be the cause of deforming, hypertrophic vulvar lesions in some cases. To-day my experience teaches me that lesions thus originating are of an ulcerating and creeping character, and are not markedly hypertrophic.

In the present paper I shall describe the form of affection included in the sixth proposition (*vide supra*).

Of the two cases which serve as my basis of clinical description of this as yet undescribed affection, which in its course and physiognomy stands apart and differs wholly from all other forms of vulvar disease, I shall give the history of but one, since the second was in all respects the counterpart of the first case.

CASE I.—S. L., born in New York of Irish parentage, was perfectly healthy until her thirty-fifth year. From the time of puberty she performed the duties of a domestic, and had intercourse, more or less frequently, with different men. In July, 1876, she was treated in Charity Hospital for a suppurating bubo of the left groin, which, being incised, left a characteristic cicatrix. The patient had no knowledge of an ulcer upon the external genitals. Early in the year 1877 she again entered the hospital, suffering from a large chancroid in the sulcus between the left labia majora and minora. This ulcer was particularly persistent in its course, but was finally healed. At this time she remained in the hospital eight months, not of necessity for treatment, but because it suited her to make it her home, as she had no other. During the existence of this chancroid it happened that I was on duty about two months. In this period she was under my observation and I familiarized myself with her history. Neither at that time nor in later and recent years did I obtain any history or evidences of syphilis, nor did the patient present any syphilitic lesions during a period of over twelve years. It may be stated, therefore, as beyond doubt that she was free from that disease.

On her discharge from the hospital in August, 1877, the patient was in excellent health; she had no vaginal discharge, and a redness of the left side of the vulva was the only sign of her previous trouble. At this date she was rather more than thirty-six years of age.

During the autumn of 1877, the patient suffered from excoriations of the vulva about the seat of the already mentioned chancroid. This part was noticed to be red and tender and to be the seat of slight oozing of blood, particularly after hard work, fatigue, and the menstrual epoch.

In consequence of this irritated and somewhat painful condition of the vulva, the patient never afterward had sexual intercourse.

During the succeeding nine years she earned a meagre and oftentimes insufficient livelihood as a domestic. She was fairly clean in her habits, as a rule, but during periodical drunken debauches she was careless as to the condition of her genitals, and, in consequence thereof, she had numerous attacks of varying severity of acute and subacute vulvitis. During all these years it seems clear from her story (which was elicited at various times with careful minuteness) that she suffered from an inflamed and excoriated condition of the left side of the vulva, which was subject to exacerbations and periods of quiescence.

She reëntered my service in Charity Hospital, August 7, 1886, being then forty-five years old, and was under my constant observation until the date of her death, May 22, 1889.

On admission, I found the vulva the seat of a maroon-colored, flat new growth which had extended to the pubes and right inguinal region. The health of the patient was good; she complained of a sense of soreness in the genitals, with occasional mild pruritus, but the symptoms seemed remarkably mild, considering the extent and seat of the disease.

After much careful questioning, I obtained what I regard as a truthful account of the origin and early appearances of the affection from which she was suffering. For several years after 1877, the woman had suffered intermittently, as before stated, from vulvitis and a feeling of soreness and thickening on the left side of the vulva, where the chancroid had been. In this state she had gone on for years. In 1884, two years before her reëntrance into the hospital and about eight years from the date of the chancroid, she noticed that the parts which had been the seat of that lesion became decidedly thickened and of a brownish-red color. This flat tumor or infiltration extended until she entered the hospital.

Various forms of treatment were adopted and followed with great care and regularity, but in the end little good was accomplished.

During the process of menstruation topical applications were almost wholly abandoned, and the healing, which had been induced in the previous few weeks, was entirely destroyed. Then, again, the woman occasionally insisted upon going out on pass and always returned with evidence of a debauch and her vulvar trouble much aggravated. In consequence of these drawbacks, her disease slowly gained ground, but I am convinced that it was materially held in check by the constant attention which was paid the patient.

During the winter months of 1888, the patient became unable to go about by reason of the soreness and pain in her genitals and the difficulty in walking caused by the new growth. She finally took to her bed and there remained until she died. A few months before her death it was evident that she was gradually failing, though there was no evidence of any organic disease. She lost her spirits and much of her flesh and died of marasmus and heart-failure May 22, 1889, in her forty-eighth year. By a sad misunderstanding, an autopsy was lost.

In addition to the study of the foregoing case, I have the main facts of a similar one which was also in my service at Charity Hospital in the year 1884.



CASE II.—The woman was in her thirty-eighth year, cadaverous and cachectic, and suffered from a similar lesion involving the whole vulva, pubes, and the upper crural regions, which began three years before. She died of inanition.

The appearances of this peculiar new growth are well shown in the colored plate, which was made about two and a half years after the date of its beginning. It will be seen that the normal appearances of the vulva are wholly lost. There are no traces of the labia, large or small. The clitoris is represented by a central mass of cicatricial tissue, and the introitus vaginae looks like a ragged slit. The perineum is also invaded with processes of the new growth jutting backward. Extending from the vulva the disease is seen to invade the pubes and the right groin, and to extend downward over the skin of the fork of the thighs. In no place is there evidence of tumor-like formation, as the new growth is everywhere developed *en surface*; in other words, it is flat in structure. The surface of this neoplasm is of a maroon or chocolate color, with considerable glossiness. At times this morbid surface was perfectly dry, and at others it gave issue to a thin, scanty, reddish serum.

The parts present a firm but decidedly elastic feeling, as if the new growth possessed a fair amount of density. To the eye and to the fingertip, it is evident that the vulvar and extra-genital portion of the new growth is uneven and thrown into slight irregular folds, a condition due undoubtedly to the natural conformation of the parts. Radiating from the clitoris region is a quite well formed sheet of cicatricial tissue, and scattered on the outer and upper parts of the new growth are irregular shaped islets of the same. Upon the lower part of the vulva and toward the perineum the mode of extension of the new growth is well shown. On the right side it juts outward by an abrupt semicircular elevated margin, while on the left the morbid tissue ends in a similarly sharp festooned outline. In the upper and older parts of the morbid area, the sharpness of the margination is lost in cicatricial tissue, and elsewhere as a result of the treatment adopted. At the time this drawing was made the morbid process stopped at the orifice of the vagina, which, however, was somewhat contracted. Toward the end of life the new growth became so copious and firm in this region, that this orifice would only admit, and then with considerable pain, a soft bougie of about No. 26, French scale. There was never any evidence of stricture of the urethra, but in my other case the lumen of that canal was much contracted. Besides the foregoing appearances, there was evidence in life of a marked condensation and contraction in all of the affected parts, which increased very slowly and imperceptibly. The salience of the vulva was, in the end, wholly lost, and examination of the new growth *en masse* showed that it was quite firmly adherent to

the deeper parts. When the patient was on her back the genitalia had a peculiar, flat appearance, and, as she stood up, it was evident that the labia majora no longer protruded between the thighs.

This new growth began as a thickened, slightly elevated patch, of deep-red color, upon the left small and large labium. From this region it extended by peripheral increase toward the vaginal orifice, over the clitoris and upward and downward on the right side, while on the left it jutted down to near the anal orifice. The increase in area took place slowly, and as the new morbid tissue was formed, the older portions remained without any visible change, ulcerative or reparative. A slight amount of heat, pain, and pruritus were felt at irregular periods. The local symptoms, however, were for a long time so mild in character that the patient made little complaint. She could sit, walk, move, and lie down with little discomfort. Later on this was all changed.

As the new growth extended it seemed to involve and infiltrate the whole thickness of the mucous membrane and the connective structures beneath them, and to convert them into a firm, elastic tissue.

This form of new growth, it seems, is not peculiar to mucous membranes alone. By its peripheral increase it involves the skin, as is well shown in the colored plate, and by it its progress on this tissue may be accurately studied. We find on the integument the same flat form of new growth seen on the mucous membranes. The surface is smooth, even, and glossy, and the color a decided maroon. The elevation of the patches is from one to three lines, and they end by a well-defined, curved or festooned border, which, rounding off sharply, is lost in the sound skin.

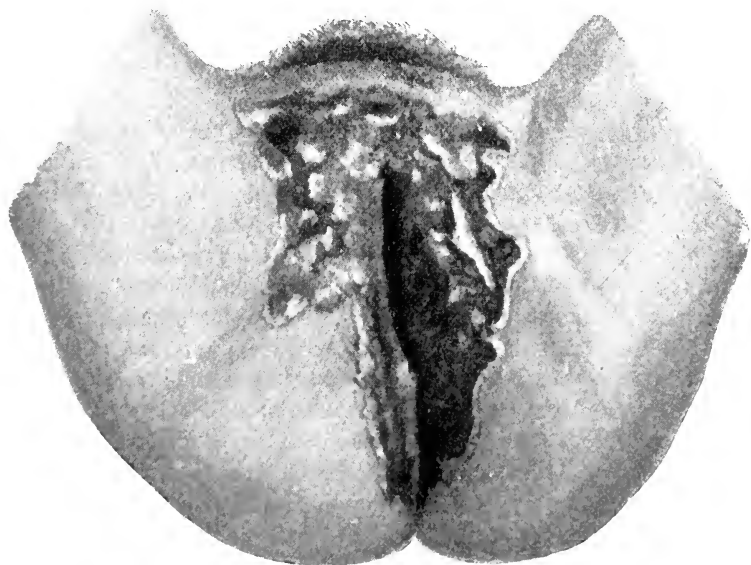
The elasticity of the infiltration remained for indefinite periods, and was slowly and gradually replaced by a marked condition of condensation, particularly in the central vulvar region. The result was that the conformation of the genitals was more and more destroyed.

As the new growth infiltrates the tissues it is noticed that, as condensation takes place, the morbid areas become more or less attached to the bony or aponeurotic parts beneath until, in the end, they may feel as if soldered to them. The foregoing conditions were frequently observed. Along the vulvar sulcus, where the disease originally began, the tissues presented to the finger-tip an almost brawny sensation, whereas, at the periphery of the new growth, well-marked but still decidedly firm elasticity was noted.

Let us now study the superficial appearances of this new growth during its entire course. As I have said before, the surface of the morbid parts was always rather glossy, sometimes dry and again slightly moist, always, however, presenting a delicately raw appearance. On the mons veneris and the thighs evidences of healing were very often noted. This process usually began in spots of pearly cicatrization, which in-

creased under favorable circumstances, until sometimes large healed areas were produced. But the cicatricial tissue always showed a great lack of vitality and endurance. So long as great care was observed, and the parts were kept scrupulously clean and dry, the healed surfaces might remain intact. But any inattention (from indifference of the nurse, during the menstrual epoch, or a drunken debauch) was inevitably followed by retrogression. It was surprising to see how rapidly the cicatricial tissue melted away. A part which was pretty well healed one day might a day or two later present the most typical morbid appearance. It was always evident that in healing, though the superficies of the morbid tissue became cicatrized, the deeper parts remained unaltered. Thus the disease oscillated between a cicatrized condition and the reverse month after month, in spite of the most careful treatment.

FIG. 1.



Showing the condition of the genitals three months before death.

The tendency to healing, however, was only observed in the juxta-genital parts just mentioned. At no time could we produce reparative changes on and within the vulva proper. There the secretions and the close coaptation of the parts wholly prevented cicatrization, even though the greatest care was paid to place interposing absorbent dressings. As time went on, the condensation of the vulvar and vaginal tissues was so great that the vulva was converted into a raw slit of tough tissue, the lips of which were drawn more and more tightly together, and the vaginal orifice almost completely stenosed. This state is well shown in Figure 1, which was taken about three months before death. It is

interesting to study this picture in connection with the plate. It will be seen that in rather more than two years the disease has extended somewhat in an outward and backward direction. It is evident, however, that the luxuriance of the infiltration shows itself by involving the tissues in their whole thickness and depth, rather than by peripheral extension. This same feature (as well as all others) was observed in my second case. The new growth showed a tendency to remain localized to the vulvar and juxta-vulvar regions.

During its whole course this new growth showed no tendency to luxuriate upon the surface. There was never any evidence of tumor-like formation, since the infiltration never reached a greater height than three lines. There is never any evidence whatever of ulceration, and though the morbid growth may, in more or less degree, become less salient, the decrease in its height is due to the slow and almost imperceptible melting away of its superficies and to its inherent, slow, contractile tendency. Further than this, it was observed that in the recesses of the vulva where the lesion was thrown into anfractuositities, there was not the slightest ulceration between its clefts and folds. It never presented any appearance resembling papillomatous outgrowths.

Though this inflammatory and infiltrative process lasted many years, it did not seem to involve the contiguous lymphatic system. In both of my cases the ganglia were slightly larger than normal, but in none of them was there at any time any evidence of inflammation. There was an entire absence of erythematous and erysipelatous complications.

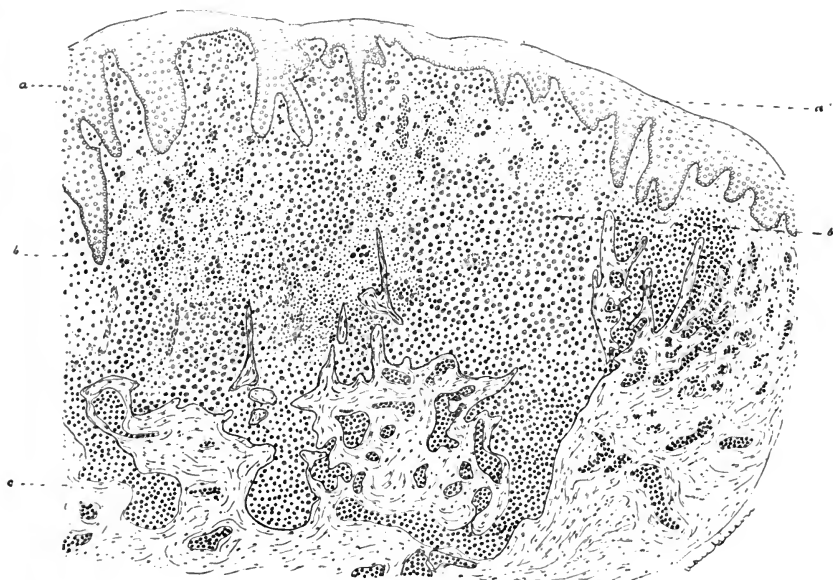
The disease shows no tendency whatever to malignant degeneration, and of itself seems to have no direct influence upon the general economy.

As I have already stated, the local symptoms were for a long time mild in character, and the patient made little complaint. Gradually, however, as the disease progressed without any abatement, the soreness in the parts was replaced by pain, particularly on the slightest movement. Walking became almost impossible, the erect position of the body could only be maintained with the greatest difficulty and discomfort, and as sitting became painful and almost impossible, the patient was forced to take to her bed. Even in the recumbent position all movements caused uneasiness and pain. The swollen, contracted, and excoriated condition of the vulvar sulcus impeded urination; the stenosis of the vaginal orifice prevented the use of cleansing and soothing injections and impeded menstruation, while the rigidity and irritated condition of the parts prevented the application of absorbent tampons. In this hopeless, bedridden condition, the patient was a pitiable object. Her sufferings and worriment of mind led to utter demoralization, marasmus and death. This same sad fate overtook my second case.

MICROSCOPICAL EXAMINATION AND PATHOLOGY.—Portions of the new growth, in its full thickness, excised by me were examined by Dr. Ira

Van Gieson, by whom the drawings (see Figs. 2 and 3) were made. The tissue was composed of three layers: (1) a superficial layer corresponding to the cutis, which is irregularly thickened by a considerable ingrowth of the Malpighian layer; (2) beneath this, replacing the corium and a

FIG. 2.



Showing a topographical view of the lesion.

- a. Epidermis irregularly thickened by ingrowths of the interpapillary portions of the rete Malpighii.
- b. Layer of granulation tissue.
- c. Lymph spaces of the deeper subcutaneous tissue filled with granulation tissue.

portion of the subcutaneous tissue, is a layer of tissue apparently identical with granulation tissue, except that in places it contains large numbers of free, red blood-cells; and (3) a third layer corresponding to the deeper subcutaneous tissue, whose lymph-spaces are filled and distended with small, round and small polyhedral cells (Fig. 3).

Where the nodule became continuous with the surrounding skin, the cutaneous lymph-spaces were also filled with small, round and polyhedral cells.

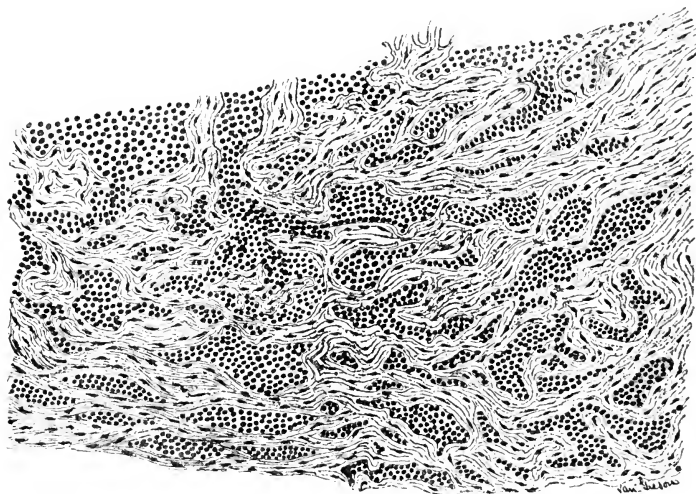
There were no bacteria of any kind in any of the numerous sections.

The results of this examination, therefore, seem to warrant the opinion that this chronic and incurable lesion consisted of simple local inflammatory tissue, which extended quite extensively into the subcutaneous lymph spaces.

When we consider the disastrous results produced by this growth, it

seems almost incredible that it should belong among the recognized simple and benign new formations. Though possessing no malignancy, it leads in the region affected in these cases to as much suffering and to as deadly results as true malignant new growths are known to produce. The conformation of and the conditions inherent to and acting upon the external female genitals are undoubtedly the underlying causes of the chronicity of the inflammation.

FIG. 3.



Showing the distention of the deeper subcutaneous lymph spaces with the granulation tissue.

Our knowledge of the behavior of inflammatory tissues in general may be used in the present instance in explaining the varied conditions which are observed in the new growth. In its soft elastic stage it consisted of the elements already mentioned. Later on, where the conditions would admit of it, healing occurred by the production of fibrous tissue out of the abundant infiltrating granulation cells. Upon the juxta-pudendal regions—mons veneris and thighs—this change resulted in true but ephemeral cicatricial tissue. In the vulvar circle, fibrous tissue was formed out of this granulation tissue, and it produced in the new growth the density and contractility which were observed to appear as the process grew old. But here surface-healing did not occur. How far the color of the new growth was due to the red blood-cells which escaped from the new and thin capillaries, we are unable to say.

It seems strange that such an active inflammatory process should increase so slowly and show such a slight tendency to grow outward.

ETIOLOGY.—The exclusion of syphilis as the cause of this new growth is warranted not only by the absence of any history of that disease, but

by the anatomical structure of its tissues. Tuberculosis is, also, etiologically out of the question, by reason of the clinical and microscopical facts adduced. Though prolonged search was made for bacteria, none were found. For these reasons, therefore, we are warranted in concluding that the lesion was not a local expression of a general infective process, nor a result of a local infection.

My study of the two cases considered in this essay convinces me that the local inflammatory condition engrafted upon the vulva by the chancroidal ulceration led to the occurrence of chronic vulvitis, and that this affection was the starting-point of the inflammatory new growth I have described. In a subsequent paper I shall show that the inflammatory processes, of all grades, very frequently lead to chronic hyperplasia of the tissues of the female genitalia. Any one who has seen a considerable number of cases of chancroids in women will recall instances in which the resulting inflammatory thickening of the tissues was even more difficult to cure than the original ulcers. Though I look upon the antecedent chancroid as the pathological forerunner of the new growth in this case, I do not attribute to it any special or specific action whatever. The chancroidal ulceration induced a tendency to inflammation which remained long after it had lost its virulent nature and had healed. A virulent, ulcerative and inflammatory process existed and was cured, but left in its wake a predisposition to simple local inflammation, which the nature of the parts and the uncleanly and disorderly habits of the patient tended to perpetuate. The resulting inflammation was in no degree complicated with an ulcerative tendency.

**DIAGNOSIS.**—The clinical features of this new growth are peculiar and distinctive. I know of no affection which resembles it in course or physiognomy. At the first glance chronic serpiginous chancroid may suggest itself to the mind. It was different in all its features from syphilitic lesions of the skin and mucous membranes, and though, to superficial examination the idea of lupus might suggest itself, a little reflection would convince the observer that neither in development, course, clinical features, nor microscopic anatomy was it like that disease. It has no resemblances in common with epithelioma. So well marked and peculiar are the characteristics of this new growth that any one familiar with it will readily recognize it.

**PROGNOSIS.**—The outlook in this disease is far from satisfactory. It is possible that, if seen in the early stage of its course it might be arrested and cured, but when it has attacked the deeper portions of the vulva little hope can be entertained.

**TREATMENT.**—In this case the new growth had attained such proportions when first seen that palliative or destructive methods of treatment were out of the question. Various agents were used to induce healing, the most efficient of which were iodoform and bismuth and iodoform

combinations. When perfect cleanliness was attainable, these drugs, applied on absorbent gauze or lint and supported by gentle but firm pressure of a bandage, usually did good. Unfortunately, this treatment could not be efficiently used in the vulvar sulcus, so that little progress was made there at any time. Though cicatrization was very often induced upon the juxta-pudendal portion of the growth, it never lasted for a long period. In short, though of simple and benign nature, this new growth is as rebellious to treatment as are the most malignant forms. It, however, may be said with some satisfaction that it does not give rise to the secondary metastatic growths which are such frequent complications of the latter.

I may add, in conclusion, that a systematic local and general anti-syphilitic treatment was once carefully followed as a tentative measure, for some months, but that no improvement whatever was observed.

The plate is taken from my *Clinical Atlas of Venereal and Skin Diseases*.

40 WEST TWENTY-FIRST ST., NEW YORK.

## THE VALUE OF THE NEW ANTISEPTIC ARTIFICIAL MEMBRANA TYMPANI.

BY JOHN WARD COUSINS, M.D. LOND., F.R.C.S.,

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EYE AND EAR INFIRMARY.

THE following remarks are intended as a reply to the short criticism which appeared in this journal for November last.

During the past twelve months I have extensively employed in my aural practice the new antiseptic artificial membrane, with excellent results. In many cases of chronic middle-ear disease marked improvement has followed its insertion into the meatus, but the most striking successes have always occurred in patients laboring under perforated the membrana tympani. I have tested the value of my artificial drum head in 130 cases of this disease, and, with only five or six exceptions, the results were extremely satisfactory. I have found it sometimes useful in cases of accommodative loss from alterations in the contents of the tympanum, in which the Eustachian tube was unobstructed and the naso-pharynx fairly healthy.

The immediate improvement in the hearing-power is often a matter of much satisfaction. The intensity of the sonorous vibration is at once increased, and sounds can be clearly defined which before appeared to be only confusion. The sensibility of the organ is magnified, and the



sense of hearing is so much changed that the patient does not appear deaf during ordinary conversation. The hearing-distance is remarkably increased, and, in place of earnest looks and strained attention, the countenance expresses both pleasure and repose. Several patients have informed me that, with the assistance of the artificial membrane, sounds had been rendered audible which they had lost for many years. Others, laboring under perforation, but without serious deafness, have used them as ear protectors with great comfort. In such cases the artificial drum-head forms a screen between the middle ear and external meatus, and acts as an efficient shield during exposure.

Sometimes good results can be obtained by simply adjusting the artificial membrane and replacing it as often as necessary. But, in a large majority of cases, perforation of the tympanic membrane is associated with chronic suppurative disease of the middle ear, so that other important remedial measures must be diligently practised, and the ear must always be thoroughly deodorized before the introduction of the artificial drumhead. I always tell my patients that they may hope for progressive improvement, but that they must not expect to realize the full amount of relief until they have regularly carried out the local treatment and worn the membrane for two or three months.

During the last half-century a large number of artificial drumheads have been introduced by different surgeons, and probably all of them have been found more or less useful in suitable cases; but not one of these devices has obtained a wide and general adoption. The ordinary cotton pellet has been extensively recommended by aurists, but it is my experience that few patients can be induced to persevere with it, because it is so liable to get out of position, and requires so much dexterity in putting it in and taking it out of the meatus.

On the other hand, the new antiseptic artificial membrane presents many practical advantages:

1. It decidedly improves the hearing-power for distance and conversation, and this appears to be due, at least in some measure, to its peculiar shape.

2. It is especially adapted for self-application, and can be easily placed in the right position and readily removed.

3. It is extremely light, and causes no sensation or irritation in the meatus by its presence.

4. It is serviceable as an efficient ear-protector, and acts as a screen for maintaining the moisture of the exposed tympanic cavity.

5. It is manufactured in different sizes, to suit the varying capacity of the external ear, and when once placed in position it is not liable to displacement.

6. It is obtainable at a trifling cost, so that a new artificial membrane can be used as often as necessary.

# 138 COUSINS, ARTIFICIAL MEMBRANA TYMPANI.

The following table exhibits twelve cases of perforation of the membrana tympani treated with the new artificial membrane:

				Hearing: 19	
				Before treatment	After treatment.
9	4x	4x	19		
No. of case.	Age.	Sex.	Disease		
1. S. H., private patient.	16	F.	Perforation of both ears involving almost entire membranes; discharge copious and fetid.	Very deaf, conversation difficult at one yard.	Progressive improvement; conversation easy; can follow sermon at church.
2. E. T., under care of Dr. J. Green, Sandport.	24	F.	Double perforation, caused by scarlet fever in early life; discharge fetid but scanty.	Sense of hearing extremely deficient; understands by lip movement.	No apparent deafness after two months' treatment; musical sounds loud and clear.
3. R. E., a medical man.	33	M.	Perforation on right side; no discharge for some years.	Hearing very deficient on right side.	Great improvement. Wrote in July, 1889, "my hearing is now restored."
4. K. P., Infirmary patient.	12	F.	Perforation of both membranes; disease of ears followed typhoid fever three years since; chronic naso-pharyngitis and fetid otorrhoea.	Mother states that she could only hear conversation in a loud tone, at the distance of one yard.	After treatment for one month, conversation easy; can hear tick of clock and sermon at church.
5. M. S., Dr. Hunter, Gosport	30	F.	Large perforation for many years followed scarlet fever; otorrhoea profuse.	Deafness variable; but always "very hard of hearing."	Ears deodorized and drums inserted; can converse without difficulty; seen after three months; hearing much improved.
6. J. L., Dr. R. Emmett, Sandport	44	F.	Perforation both membranes; no discharge.	Very deaf twenty years.	Hearing much improved. Patient said: "With drums I can hear well; I change them twice a week."
7. N. T., Dr. Axford, Southsea.	24	F.	Extensive destruction of membranes; fetid discharge and aural polypus.	Very deaf from twelve years of age	Recently married, October 1, 1889. Husband wrote: "I am delighted with the remarkable improvement in my wife's hearing."
8. L. S., Infirmary patient.	17	F.	Perforation both ears; copious and fetid discharge.	Hearing very deficient for three years.	Very much improved; can hear comfortably at church and in conversation.
9. E. G., Dr. R. Emmett, Sandport,	66	F.	Perforation of many years' duration.	Very deaf; had used ear trumpet for years.	Hearing much improved; has discarded the trumpet.
10. T. W., a medical man.	24	M.	Perforation of right entire membrane; mastoid abscess; six years since an operation for drainage followed by great relief.	Hearing very imperfect on right side.	Wrote Sept. 1889: "I find great comfort from the artificial membrane and hearing much improved."
11. S. K., Dr. Woodward, Ryde.	22	F.	Perforation of both membranes since five years; caused by scarlet fever; very fetid discharge.	Very deaf; conversation difficult at one yard.	Conversation easy. She said, Nov. 1, 1889: "The membranes are a very great help and keep out the cold air."
12. S. F., (private patient) Gosport.	74	M.	Large posterior perforation, right membrane; left membrane white and puckered; no discharge.	Lost hearing on right side for many years; left very imperfect. <sup>1</sup>	Immediate improvement by insertion of artificial membrane. Nov. 10, 1889, stated: "My right ear is now very useful, and my hearing much improved."

<sup>1</sup> Patients have often told me that they had lost all sense of hearing on the side of the perforation, and have expressed surprise at the effect of the artificial tympanic membrane.

Handwritten notes at the bottom of the page include "Cousins S. H. 68 me" and "See".

THE OXYTOCIC ACTION OF QUININE.<sup>1</sup>

BY I. E. ATKINSON, M.D.,

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SINCE Petitjean,<sup>2</sup> in 1845, wrote that he had so often seen abortion produced during the administration of quinine for intermittent fever, that he no longer attempted to cure this disease during pregnancy, medical literature has teemed with discussions of the asserted oxytocic action of this drug. In 1855, Dr. John S. Wilson<sup>3</sup> described the uterine action produced by quinine, and in 1860, Dr. J. H. Rich<sup>4</sup> reported several cases of alarming uterine hemorrhage speedily checked by its means.

During the following year the oxytocic action of quinine was insisted upon by Cochran, Canada, Crouse, and Lewis;<sup>5</sup> Cochran asserting that the influence it exhibited in delicate, nervous, and irritable pregnant women predisposed to abortion. In 1871, Sayre<sup>6</sup> wrote to similar effect. General attention had not been attracted to this subject, however, until the appearance of an elaborate article by Monteverdi,<sup>7</sup> in the same year. This author declared that the special action of quinine upon the sympathetic system determined the contraction of those muscular fibres dependent upon it, particularly of the uterus, the intestines, the bladder, and the bloodvessels; that this contraction is physiological after small doses, but that after large doses a condition of constant tension results; that in a half hour after a moderate dose, brief contractions occur in the uterus, at first unaccompanied by pain, but gradually becoming stronger and longer with distinct intermissions, so as to resemble ordinary labor pains. This effect, he claimed, lasts about two hours and then subsides. Monteverdi concluded that quinine should be given with prudence to pregnant women, and that it is a trustworthy ecboic and preferable to ergot.

This paper received at once widespread attention and provoked expressions of opinion from physicians everywhere, especially from those who practised in malarious districts. That quinine possesses positive oxytocic properties was asserted by a large number of writers in many and widely separated countries. Among these were Delieux

<sup>1</sup> Read before the Clinical Society of Maryland, October 4, 1889.

<sup>2</sup> *Gaz. des Hôpitaux*, Ranking's Abstract, vol. i., 1845.

<sup>3</sup> *Southern Medical and Surgical Journal*, 1855, 341.

<sup>4</sup> *Charleston Med. Journ. and Review*, March, 1860.

<sup>5</sup> *Cincinnati Lancet and Observer*, July, 1861; also, *Hamilton*, *ibid.*, July, 1861.

<sup>6</sup> *American Practitioner*, 1871.

<sup>7</sup> *Bull. de la Soc. de Méd. de Gand*, vol. xxxviii. p. 239, 1871. *AMERICAN JOURNAL OF THE MEDICAL SCIENCES*, lxii., 1871.

de Sauvignac,<sup>1</sup> Duboué,<sup>2</sup> Hehle,<sup>3</sup> Pollak,<sup>4</sup> Josch,<sup>5</sup> Eaton,<sup>6</sup> Walraven,<sup>7</sup> Deneffe,<sup>8</sup> Rancillia,<sup>9</sup> Landis,<sup>10</sup> Wells,<sup>11</sup> Gray,<sup>12</sup> Packard,<sup>13</sup> Magnin<sup>14</sup> (who also quotes as confirmatory Cauterman, Horand, Danielli, Bianchi and others), and Wathen.<sup>15</sup> In a discussion before the St. Louis Medical and Surgical Society,<sup>16</sup> ecobolic properties were confidently ascribed to quinine by Drs. Hendrix, Burnett, Hurt, Morrison, Rowland, and Holland. Confirmatory observation was also made by Blackwood,<sup>17</sup> Benson,<sup>18</sup> Wiendahl,<sup>19</sup> Haussmann,<sup>20</sup> Paterson,<sup>21</sup> Roberts,<sup>22</sup> Powell,<sup>23</sup> Downes,<sup>24</sup> Burt,<sup>25</sup> Lewis,<sup>26</sup> Bardill,<sup>27</sup> Ghose,<sup>28</sup> Cayley,<sup>29</sup> Westmoreland,<sup>30</sup> Barrett,<sup>31</sup> Bracchi,<sup>32</sup> and Stewart.<sup>33</sup> While all of these writers agree as to the power of quinine to excite uterine contraction, they differ widely concerning the extent to which it possesses this property. They also discuss various directions in which the power may be exhibited; in the control of hemorrhage, simple or post-partum, in initiating the pains of abortion or of labor, in stimulating the force of contractions already established, and in facilitating the third stage of labor. Some claim that its abortifacient action is exerted only during the early months of pregnancy (Pollak, Haussmann); others, only toward its close (Ghose, Wiendahl). Bouqué (Magnin) asserts that it exerts a selective action upon the fibres

<sup>1</sup> Bull. Général de Thérapeut., 1871, lxxxi. p. 298.

<sup>2</sup> L'Union Médicale, 1871, xii. 545.

<sup>3</sup> Wiener med. Presse, 1871, 36, and 1822, 29.

<sup>4</sup> Ibid., 1872, 13. 708.

<sup>5</sup> Ibid., 1872, 13.

<sup>6</sup> Kansas City Medical Journal, April, 1872.

<sup>7</sup> Gaz. Obstetricale de Paris, 3, 1873. 350.

<sup>8</sup> Boston Medical and Surgical Journal, 1873.

<sup>9</sup> L'Union Médicale, 1873.

<sup>10</sup> Philadelphia Medical Times, vol. iii. 276.

<sup>11</sup> Louisville Medical and Surgical Journal, July, 1874.

<sup>12</sup> Obstetrical Journal of Great Britain, i., 1873, 398.

<sup>13</sup> Ibid., ii., 1874, 446.

<sup>14</sup> Thèse de Montpellier, No. 64, 1873.

<sup>15</sup> Practitioner, xvii., 1876, 38.

<sup>16</sup> St. Louis Medical and Surgical Journal, xlv. 159.

<sup>17</sup> Medical and Surgical Reporter, January, 1875.

<sup>18</sup> Practitioner, vol. xxiii., 1879, 428.

<sup>19</sup> New Orleans Medical and Surgical Journal, December, 1885.

<sup>20</sup> Berliner klinische Wochenschr., 1882, 562.

<sup>21</sup> Practitioner, July, 1877.

<sup>22</sup> Ibid., vol. xviii. 256.

<sup>23</sup> Medical Brief, ix., 1881, 135.

<sup>24</sup> Lancet, ii., 1880, 616.

<sup>25</sup> Medical and Surgical Reporter, February 5, 1870.

<sup>26</sup> Ibid., 1870.

<sup>27</sup> Rocky Mountain Medical Review, December, 1880.

<sup>28</sup> Indian Medical Gazette, 1882, p. 141.

<sup>29</sup> Ibid.

<sup>30</sup> Atlanta Medical and Surgical Journal, xvi., 1878-79.

<sup>31</sup> St. Louis Medical and Surgical Journal, xlv., 1883, p. 160.

<sup>32</sup> Raccoglitori Med. Forli, xxiv., 1885, 275.

<sup>33</sup> Medical and Surgical Reporter, lviii., 1888, 13.

of the body of the uterus, to the exclusion of the cervix, while Chirone<sup>1</sup> and Sacchi<sup>2</sup> consider it most effective in promoting dilatation.

All these observers, agreeing in their main facts, find some confirmation of their opinions in a more or less widespread popular prejudice against the use of quinine during pregnancy. Monteverdi was induced to study the subject by finding this prejudice prevalent among the women of Cremona, and Roberts asserts that in India all the natives attribute ebolic action to the drug, while Paterson states that this opinion is held not only by the natives of India, but by those all over the East.

But the number and credibility of the observers cited is almost, if not quite, equalled by those who absolutely deny that quinine has any properties of stimulating uterine muscular fibres. Already in 1846, Rodriguez<sup>3</sup> denied Petitjean's assertion that it is dangerous to give quinine to pregnant women, and related fifteen cases of intermittent fever during pregnancy which he had treated with quinine with no unpleasant result, and in 1858, Dr. Joseph W. West<sup>4</sup> declared that the drug had no abortifacient power. Subsequently, similar conclusions were drawn by a very large number of writers, most of whom, living in malarious districts, had excellent opportunities to make their observations and who had been in the habit of employing quinine in the treatment of malarial fevers during pregnancy, freely and without fear. Among these are to be mentioned Beauchamp,<sup>5</sup> Rooker,<sup>6</sup> May,<sup>7</sup> Russwurm,<sup>8</sup> Bailey,<sup>9</sup> Bordley,<sup>10</sup> Brown,<sup>11</sup> Erickson,<sup>12</sup> Harris,<sup>13</sup> Rutland,<sup>14</sup> Seeds,<sup>15</sup> Ashford,<sup>16</sup> Lee,<sup>17</sup> d'Arcourd,<sup>18</sup> Erwin,<sup>19</sup> Plumb,<sup>20</sup> Lincoln,<sup>21</sup> Bergele,<sup>22</sup> Brochin,<sup>23</sup> Prunac,<sup>24</sup> Tissus,<sup>25</sup> Taillard,<sup>26</sup> Senre,<sup>27</sup> Vicali,<sup>28</sup> Lewis,<sup>29</sup> Campbell,<sup>30</sup> Watkins,<sup>31</sup>

<sup>1</sup> Lo Sperimentale, 1875 (Virchow und Hirsch, Jahresberichte für 1875).

<sup>2</sup> Revista Med. di Bologna (Virchow und Hirsch, Jahresberichte für 1875).

<sup>3</sup> Ranking's Abstract, vol. iv. p. 311.

<sup>4</sup> Savannah Journal of Medicine, vol. i. 19.

<sup>5</sup> American Practitioner, 1870.

<sup>6</sup> Ibid., 1870.

<sup>7</sup> Ibid., 1870.

<sup>8</sup> Ibid., 1871.

<sup>9</sup> Medical and Surgical Reporter, 1872.

<sup>10</sup> AMERICAN JOURNAL OF THE MEDICAL SCIENCES, 64, 1872, 287.

<sup>11</sup> Ibid., 64, 1872.

<sup>12</sup> Ibid., 64, 1872.

<sup>13</sup> Ibid., 64, 1872.

<sup>14</sup> Ibid., 64, 1872.

<sup>15</sup> Ibid., 64, 1872.

<sup>16</sup> Ibid., 63, 1872.

<sup>17</sup> Ibid., 63, 1872.

<sup>18</sup> Medical News and Library, May, 1873.

<sup>19</sup> St. Louis Medical and Surgical Journal, March, 1873.

<sup>20</sup> AMERICAN JOURNAL OF THE MEDICAL SCIENCES, 66, 1873.

<sup>21</sup> Ibid., 66, 1873.

<sup>22</sup> Wiener med. Presse, 1872.

<sup>23</sup> Gazette des Hôpitaux, 1875.

<sup>24</sup> Ibid., 1875.

<sup>25</sup> Ibid., 1875, p. 20.

<sup>26</sup> Ibid., 1875, p. 43.

<sup>27</sup> Ibid., 1875, p. 379.

<sup>28</sup> Ibid., 1875, p. 1107.

<sup>29</sup> Virginia Med. Monthly, Feb. 1878.

<sup>30</sup> American Journal of Obstetrics, 1880.

<sup>31</sup> St. Louis Medical and Surgical Journal, xlv. p. 159.

Henry,<sup>1</sup> Wood,<sup>2</sup> J. D. Smith,<sup>3</sup> Payne,<sup>4</sup> Cullen,<sup>5</sup> Ahmed,<sup>6</sup> Chiari,<sup>7</sup> and Bazin.<sup>8</sup> Many of these writers derived their experience from years of practice and abundant opportunities for observation. Ahmed, for example, did not remember a single abortion produced by quinine in a dispensary service at Burdwan (during epidemics of 1871-72-73) with an attendance of 300 or 400 patients daily, at which hundreds of pregnant women were treated and where a pound of quinine was dispensed daily. They did not deny that abortion and premature labor often occur during the course of malarial fevers, but it was claimed that this result is due to the fever and not to the quinine; that, indeed, the best measure to prevent the abortion is the timely and sufficient administration of this remedy. Illustrative cases were brought forward in abundance.

That abortion and premature labor are not uncommon during malarial fevers is widely admitted. Definite proof of this, however, is by no means readily obtainable; statistics are largely wanting. The figures of Góth<sup>9</sup> relating to this point are very interesting. This writer states that in a lying-in hospital in a highly malarious district, there were (during a period of six years, 1873-78) 881 women delivered; of these, 46 were affected with malaria during a longer or shorter portion of their pregnancies. In 27 of these pregnancy reached its full term. Abortion or premature labor occurred in 19. Thus, pregnancy was interrupted in 41.3 per cent. of the malarial patients. Góth also shows that the large majority of these premature labors occurred during the seventh and eighth months. But since in institutions it is not usual for patients to be admitted earlier than this period, these figures are probably without value. Unfortunately, Góth's observations seem to have had no reference to the concurrent administration of quinine, though he incidentally refers to the powerlessness of the agent to prevent labor in certain cases, and they are open to the objection that they do not place beyond suspicion a possible abortifacient influence of this agent. The universal use of the alkaloids of Peruvian bark in the treatment of malarial disorders renders a study of the abortifacient tendencies of malarial intoxication extremely difficult. It is most important that such should be made. Certainly, several of the writers already cited found that pregnant women who aborted while suffering from malarial fever for which they were taking quinine, passed through later pregnan-

<sup>1</sup> *Ibid.*, xlv. p. 83.<sup>2</sup> *Phila. Medical Times*, 1874, p. 143.<sup>3</sup> *Mississippi Valley Medical Journal*, vi., 1886, p. 450.<sup>4</sup> *Gaillard's Medical Journal*, xxxiv. 315.<sup>5</sup> *Indian Medical Gazette*, October 1, 1881.<sup>6</sup> *Ibid.*, 1882, ii. p. 165.<sup>7</sup> *L'Union Médicale*, xvi., 1873.<sup>8</sup> *Ibid.*, xvi., 1873.<sup>9</sup> *Zeitschrift für Geburtshülfe u. Gynäkolog.*, 6, 1881, 17.

cies to full term, though experiencing attacks of malarial fever repeatedly, but from whom quinine had been withheld.

Whatever be the result of individual investigations, they cannot negative the conclusion, which the observations of a large number of competent reporters seem to justify, that quinine excites no definite pharmacological or physiological contractions in the uterine musculature, especially during pregnancy. It is in the highest degree improbable that, had this agent this property as part of its regular physiological action, numbers of competent observers, practising in highly malarious localities and giving the drug fearlessly in large and repeated doses to pregnant women, should have failed to notice it. This negative evidence has seemed sufficient to cause a rejection of the claims of quinine to oxytomic action in the text-books. Many of the authors do not even deem the subject worthy of notice. Horatio C. Wood,<sup>1</sup> however, has most carefully considered the whole question, and in an excellent *résumé* gives in detail the reasons for his adverse opinion.

While, however, we may deny that quinine has this definite and fixed physiological property, are we equally prepared to deny that it may produce this effect as part of an irregular and unusual operation? Agreeing that it has no claim to be held as a fixed oxytomic remedy, we must have recourse to idiosyncrasy to reconcile the statements of the numerically large but relatively small number of physicians who have observed its oxytomic effects with the negative testimony of many whose experience has been as large and whose credibility is as great.

Leaving out of consideration the often-asserted hæmostatic properties of quinine—properties that have been claimed for it by many writers (Rosenstein, Hoffmann, Wagner, Vogel, Morton, and others for general hemorrhages, and Deboué, Melchior, Rabot, Gerelli, Barthouze, Deneffe, Guéneau de Mussy, and many others for uterine hemorrhage)—I propose to submit a few cases, selected from a large number upon record, in which it is difficult to avoid the conclusion that a specific action was exerted by quinine upon the uterine musculature. From this consideration have been rejected the large number of reports concerning the action of the drug in promoting the pains of labor already established, as being too liable to erroneous interpretation. It is very unfortunate that observations of the effects of quinine upon pregnant animals have been very few. Such as they are, they do not show constant results. Three of them seem to be of sufficient importance to merit a brief notice. Two of these were made by Rancillia, and one by Magnin. They were as follows:

EXPERIMENT 1.—A spaniel bitch had been covered eighty days previously, and was consequently fifteen days overdue. She was depressed, without appetite, and had a muco-purulent discharge from the vulva.

<sup>1</sup> Therapeutics, Materia Medica, and Toxicology, 2d edition, 1877, p. 61.

Four grains of ergot were given her morning, noon, and night, but without effect. Two days later, Rancillia administered three-quarters of a grain of sulphate of quinine every half-hour. After the eighth dose violent contractions began. These resulted in the expulsion of three dead and partly decomposed pups.

EXPERIMENT 2.—A little bull bitch had been covered accidentally by a strong Newfoundland dog, forty-nine days previously. She had become so big as to excite in her owner fears for her safety. Rancillia gave her one and a half grains of sulphate of quinine every half-hour. At the sixth dose she was delivered of six living pups.

EXPERIMENT 3 (Magnin).—This was upon a doe rabbit, which had been covered twenty-four or twenty-five days previously. August 4th Magnin injected three-quarters of a grain of sulphate of quinine at 8.30 o'clock A.M. At 8.35 o'clock a second injection of three-quarters of a grain was given. These injections were repeated every fifteen minutes for two hours. At 10.30 o'clock the experiment was suspended. The rabbit was then very restless and had a hot skin. At 2 o'clock P.M. she seemed very well, having eaten during the interval. Injections of three-quarters of a grain were resumed, but at intervals of ten minutes. Of these she had two, and at 3.45 o'clock three young rabbits were found dead by her side.

In two other experiments made by Magnin abortion did not occur. In one, the animal died without aborting after  $11\frac{1}{2}$  grains had been injected. The necropsy revealed great distention of the stomach, with congestion of the intestines, uterus, and brain. The experiments of H. C. Wood resulted negatively. This observer gave quinine to two pregnant cats, "in one case in sufficient quantity to cause death without disturbing the products of conception." Chirone has also noted the possibility of death following the administration of quinine to pregnant animals without having been preceded by abortion.

These experiments are too few to justify positive conclusions, but they seem to show that the uterine muscular fibres of animals may occasionally be stimulated to activity by quinine. Passing to the human subject, it can be shown, in the first place, that quinine may excite uterine pains in pregnant women without precipitating labor. This has been attested by various writers, but one or two examples will be enough for our purpose.

CASE I. (Haussmann<sup>1</sup>).—Frau X., during the autumn of 1881 had neuralgia of the right tibial nerve. This began at 3 o'clock P.M., and lasted until night. Large doses of quinine were given, but without result, and the neuralgia only ceased upon her return to her home. Since March 1, 1882, this neuralgia had returned regularly at 3 P.M. March 14th, she was given 15 grains of sulphate of quinine at one dose, upon an empty stomach. The neuralgia was but slight the succeeding evening. Next day (15th) the dose was repeated at one o'clock. Early on the 16th she had slight pain in the toes, but she took no quinine this day. March 17th, she took 15 grains of sulphate of

<sup>1</sup> Berliner klin. Wochenschr., No. 37, 1882, 566.



quinine in four doses. She now took no more until March 24th, when, the neuralgia having recurred with constantly increasing intensity, 15 grains were given, and this dose was repeated the next day. The attacks became feebler, but did not quite cease. March 28th, she had 23 grains of sulphate of quinine, after which the attacks did not return. This naturally strongly-built woman had aborted about a year and a half previously. Early during the preceding year she had only been saved from a second mishap by opium. She had again conceived in January of the current year (1882). For the first two days of the administration of quinine, which was during the latter part of the third month of pregnancy, she experienced, about two hours after its ingestion and almost simultaneously with the beginning of the *tinnitus aurium*, severe pains of precisely the same character as she had had in her first, completed, and her second threatened, abortion. The uterine contractions lasted at least two hours, and on the first days caused a slight show of blood from the genitalia. They finally ceased spontaneously under rest. On the following days the pains began from four to six hours after the ingestion of the quinine, and were briefer, except on March 28th, when there was a very slight loss of blood. Finally, on March 29th, when 23 grains of sulphate of quinine were taken upon an empty stomach, the pains began almost as soon as it was swallowed, although vomiting occurred about one and a half hours later, and continued with the pains until evening, when the latter again disappeared spontaneously. *On the other hand, on those days, and especially the afternoons, when no quinine was given (March 18-23), there were no pains.* Haussmann attributed this unusual effect of quinine to a greatly debilitated, anæmic, and wasted condition in a woman in whom there was an undue irritability of the uterine system, and concluded that only from inordinate doses or in debilitated conditions are oxytocic effects to be feared.

CASE II. (Deboué.<sup>2</sup>)—Every time this patient, a pregnant woman, took quinine (from 9 to 12 grains daily) she experienced, for a quarter or half an hour, pains in the lower portion of the abdomen, apparently situated in the uterus and accompanied, especially during the first days, by true contractions of this organ. As the young woman regained her health the contractions had less and less energy and duration. Two years later (December, 1868) this same woman had a return of remittent fever during pregnancy and Deboué gave her 22 grains of sulphate of quinine daily. He noted very distinctly the development of uterine contractions at each dose. Deboué had seen other similar cases, but did not think that doses of from 12 to 15 grains daily were sufficient to produce abortion.

CASE III. (Burt.<sup>2</sup>)—The mother of five children was in her sixth pregnancy. Burt was called to attend her in September, 1869. She then had intermittent fever and was four months pregnant. A chill was expected in a few hours and Burt gave her eight grains of quinine sulphate and left her to visit another patient. Upon his return she told him that she was in labor, the pains being regular and seemingly natural. She was quickly brought under the influence of morphine, when the pains gradually left her. She had had no return of them when last seen, four months later, although she had suffered from intermittent fever repeatedly.

<sup>1</sup> Medical and Surgical Reporter, Feb. 5, 1870, p. 120.

<sup>2</sup> L'Union Médicale, xii., 1871, p. 545.

CASE IV. (Barret.<sup>1</sup>)—"I gave the quinine several times and labor pains were produced, and then I stopped and the pains subsided; and then I gave the quinine again and the pains reappeared."

CASE V. (Danielli.<sup>2</sup>)—A woman, twenty-eight years old, had had five labors and one abortion at five months. She was pregnant for the seventh time. In the middle of June she had enteritis and quotidian intermittent fever. She was ordered to take 12 grains of sulphate of quinine daily, but this had to be discontinued on account of the uterine pains it excited. Under a renewed administration of the remedy these pains reappeared. Toward the end of June the fever reappeared and another physician was called to attend her. She was again given sulphate of quinine, which was again followed by intense uterine pains, and, this time, by abortion.

CASE VI. (Wathen.<sup>3</sup>)—A weakly, delicate woman came under treatment (April 18th) for severe neuralgic pains extending over the whole of one side. There was slight pyrexia, but no physical signs of disease were detected. After expressing the opinion that the case was one of an epidemic class of pleuro-pneumonia that was prevailing in the neighborhood at the time, the writer proceeds: "On the 21st (salines having been given until then), two grains" (of quinine) "were ordered to be given every four hours. The case, apparently doing well, was not seen for several days, when the patient stated that after taking a few doses of quinine, strong bearing-down pains came on—'worse than any labor pains she had ever had'—and, after nearly a whole day of pain, to her astonishment, a good-sized mass was expelled from the uterus." This was a tumor of the size and shape of an ordinary-sized bun. It had all the characteristics of a fibroid. There was no pedicle, and Wathen thought it most probably intra-mural. The patient stated that there had been no menorrhagia and that she had not experienced any uncomfortable feeling to indicate that there was anything wrong with the womb.

CASE VII. (Hehle.<sup>4</sup>)—The patient was a multipara, thirty-two years old, very anæmic and debilitated. She had complained for four months of repeated irregular uterine hemorrhage. The uterus was felt as an oval body, the size of a fist, above the *symphysis pubis*. The uterine contents could not be defined upon vaginal examination on account of the high and narrow cervix. During the succeeding two months Hehle succeeded, by various therapeutic measures, in preventing large hemorrhage, but there continued constant oozing and the patient became increasingly debilitated. Having determined to empty the uterus of its contents, he ordered twelve grains of sulphate of quinine to be taken at five o'clock A.M., and three grains every second hour thereafter. After the last dose, at eight o'clock P.M., pains began and continued throughout the night and the two following days. Being summoned on account of the pains, Hehle found the os dilated to the size of a thaler, the cervix effaced and the uterine cavity containing a dense tolerably elastic body. Failing to dislodge this mass with his finger, Hehle now gave ergot and the mass was soon extruded. It was a hydatid mole weighing about one pound.

<sup>1</sup> St. Louis Med. and Surg. Journ., xlv., 1883, p. 160.

<sup>2</sup> Quoted by Magnin.

<sup>3</sup> Practitioner, xvii., 1876, p. 38.

<sup>4</sup> Wiener med. Presse, No. 36, 1871, p. 911.

A very bulky amount of evidence has been recorded to show that abortion or premature labor has been brought about by quinine directly. It is nearly always difficult, however, to assign definitely to a drug an influence in producing untoward results in the course of diseases which are known to be capable of producing them, occasionally, of themselves. Thus, in those maladies in the treatment of which quinine is usually most freely employed, *e. g.*, malarial fevers, pneumonia, typhoid fever, etc., pregnant women often enough abort simply from the effects of the specific morbid action; and while the relation of cause to effect may often be determined to the satisfaction of those whose opportunities have permitted a personal observation of the phenomena, the connection is by no means so clear to those whose knowledge must come at second-hand. In this manner, much of the evidence upon this subject has failed to satisfy the critical reader; and possibly, on the other hand, it is thus that the prejudice of an observer may cause him to reject evidence tending to prove the potency of the drug, in favor of that of the disease, in determining the result. Many of the reports make it not at all clear that the result has been due to the drug rather than to the disease, and this obscurity is very often attributable to careless or imperfect observation. There are many, however, in which the proofs seem to be fairly credible. Of this considerable number, a few examples only are here appended.

CASE VIII. (Bianchi.<sup>1</sup>)—A woman, forty-three years old, had had six children at full term. In 1868 she conceived a seventh time. Toward the end of the fifth month she was attacked with intermittent fever, which was accompanied by violent dyspnoea. She was given for this, sulphate of quinine, but this agent provoked uterine pains with violent hemorrhage. Two children were born and the woman made a good recovery. In 1869 she became pregnant for the eighth time. During the eighth month she was seized with orthopnoea and cardialgia. Sulphate of quinine and digitalis were given. Labor began shortly afterward. It was quickly accomplished and she again made a good recovery. This woman now passed three years in perfect health, but toward the middle of March, 1872, when six months pregnant, she was again threatened with orthopnoea and cardialgia, though auscultation and percussion revealed nothing abnormal. The symptoms were so grave that asphyxia appeared imminent. There was albuminuria with oedema of the lower extremities. With a view of evoking labor pains, Bianchi now prescribed the sulphate of quinine. He ordered a pill of 4 grains to be taken every half-hour. After she had taken five of these pills (20 grains), lumbar pains were developed. After a sixth pill the uterine contractions became regular, the cervix softened and the os dilated. Toward midnight, however, the pains ceased and the orthopnoea became so distressing that B. thought of turning and delivering. Before doing so, however, he administered another dose of quinine. In less than a half-hour the uterine contractions and the pains reappeared and the accouchement terminated happily.

<sup>1</sup> Quoted by Magnin.

CASE IX. (Downes.<sup>1</sup>)—A lady expected her confinement at the latter part of August. In the middle of July she had fever, which, at first of an intermittent kind, showed a tendency to become continuous. Downes endeavored, with some success at first, to stay the fever with jaborandi and arseniate of quinine, without giving sulphate of quinine. The amount of quinine in the arseniate was so small that he did not hesitate to give it. Nearly a month passed and the fever was so bad and intractable and the patient became so weak that he began to fear the consequences, both to mother and child. Therefore, on August 7th, he began to give the sulphate of quinine in five-grain doses, three times daily. She took one dose in the morning and one at midday. At about 8 o'clock in the evening, without warning, the waters broke and slight uterine pains came on. The child was delivered at 11 o'clock. It was very small and looked as though it had been born a month before its time.

CASES X., XI., XII. (Blackwood.<sup>1</sup>)—The first patient was in the eighth month of her pregnancy when she was attacked by a quotidian intermittent fever. She took three grains of sulphate of quinine every fourth hour for three days. As there was no decided improvement, on the fourth day she took five grains every fourth hour. After she had taken twenty grains, labor pains began and delivery was completed. The second patient was in the seventh month of a fifth pregnancy. She was seized with quotidian intermittent fever. She was given three grains of sulphate of quinine every fourth hour. After this treatment had been continued four days, labor set in and was completed. The third patient was seven months pregnant. She also was seized with quotidian intermittent fever. Labor began after she had taken thirty grains of sulphate of quinine. All three of these women had previously been healthy and had never miscarried. *Within the two succeeding years Blackwood was called to attend each of these women for intermittent fever while they were pregnant. He now treated them with arsenic and in neither was pregnancy interrupted.*

CASE XIII. (Personal.)—On January 18, 1889, I was summoned to attend Mrs. D., who was in the eighth month of her first pregnancy. She was a small but perfectly healthy-looking woman, and had been well up to the day previous. During the autumn she had been in the country with her husband. She had never previously had malarial fever, but upon the date of my visit had had a chill followed by fever, which was passing off when I saw her. No specific treatment was ordered. On the 19th she had another chill and fever, and on the 20th the paroxysm was repeated. A quotidian intermittent fever was diagnosed and the importance of controlling the attacks was urged upon the family, and at the same time the asserted oxytomic action of quinine was explained, with, however, some expression of incredulity. The decision being left with me, I ordered five-grain doses of sulphate of quinine, in capsules, every fourth hour until twenty-five grains had been given during twenty-four hours. The remedy was given too late on the 20th to interfere with the paroxysm and although the full amount was taken and retained, the paroxysm appeared to be in no manner influenced on the 21st. Twenty-five grains were again administered during the day as before, and on the 22d there was no paroxysm. Though there had been

<sup>1</sup> Lancet, ii., 1880, 616.

<sup>2</sup> Medical and Surgical Reporter, January 9, 1875, 23.

no fever since the afternoon of the 21st, upon my visit on the morning of the 22d my patient told me that she had since early morning transitory lumbar pains. These increased during the evening and night, and on the morning of the 23d I found her in labor. Her child, born just before midnight, was a tiny creature with a thick down of lanugo hairs over its forehead, temples, cheeks and body, and seemed considerably younger than an infant at term. It was living, however, and lived. The mother made a good recovery and had no return of the malarial fever. During the paroxysms the temperature did not exceed  $103.5^{\circ}$  F.

The foregoing cases are a few of the many observations made by nearly a hundred physicians during the last forty years in many parts of the world. They all lack the scientific accuracy of a mathematical demonstration, since in every observation, upon the human subject at least, the action of the remedy was liable to be confounded with that of the disease upon the organism. An unprejudiced criticism of many reports leaves one unable to decide the value of the testimony; but in many others it is difficult not to recognize the action of quinine upon the uterine musculature. There is no difficulty in determining such action to be inconstant. Indeed, a number of writers have shown that quinine not unfrequently prevents abortion by its power of counteracting abortifacient morbid action. It is significant that many of those who deny that quinine ever acts as an oxytomic, freely admit that malaria itself may provoke uterine contractions and interrupt pregnancy. It is extremely improbable that any malarial patients escape the ingestion of quinine, unless by accident, and it is thus that a certain number of the cases supposed to illustrate the abortifacient tendencies of malarial intoxication, may, in fact, present examples of idiosyncratic reaction to the presence of quinine in the system. The latter possibility, supported by the observations of the large number of writers already quoted, certainly justifies the demand for renewed attention to the subject.

In conclusion, the following propositions are submitted:

## COCAINE IN THE TREATMENT OF YELLOW FEVER.

BY JAMES THORINGTON, M.D.,

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IN an experience of seven years' active practice on the Isthmus of Panama, where cases of yellow fever were constantly under my observation, I have tried many kinds of treatment in yellow fever, such as—

1. Quinine, which I found did much more harm than good, except during convalescence.

2. Calomel, which did good only at the beginning of an attack, and much injury if used later.

3. Castor oil and orange-tea, as recommended by the physicians in Cuba, did good in some instances.

4. The pure juice of the lime with small pieces of cracked ice, as recommended by the physicians in the service of the Panama Canal Company, was found more satisfactory than any of the above methods of treatment.

5. Jaborandi and veratrum viride, so strongly recommended by Ford (see the Reports of the St. Louis Medical Society, by W. H. Ford, A.M., M.D., 1879), although contraindicated, I tried faithfully in several cases, but without success. Having used in vain nearly all the drugs recommended in this disease, for a time I banished medicines almost entirely, and found that

6. Good nursing, without medicinal treatment, saved some of my patients.

In looking over the notes of my cases, I find that nausea and vomiting (black vomit) and not the suppression of urine, were the cause of death

Chart I. gives the record of one of these, and it will be seen that there was a marked diminution in the amount of urine passed on the evening of the fifth day, and that violent delirium set in. Everything was done to increase the flow of urine, but the patient succumbed to suppression and death by convulsions. In previous cases similar to this, black vomit appeared in large amount before death, but in this case there was an absence of vomiting due to the action of cocaine.

My friend and colleague, Dr. F. A. Bettelheim, Resident Physician and Surgeon of the Panama Railroad Company, at Panama, to whom the cocaine treatment in yellow fever was recommended, writes me under date of February 5, 1888, as follows:

"Six cases of yellow fever, result two deaths. I congratulate you and Dr. Jennings on the cocaine treatment; it has worked like a charm. The fact is, in three cases I gave nothing else except some enemata of chloral and potassium nitrate, and baths. The febrile reaction was well controlled by the baths and sponging, and in one or two instances enemata of antipyrin were exhibited when the temperature mounted up to 104° Fahr. I feel now that with cocaine exhibited vomiting is an unknown quantity in yellow fever, and in addition, using the rectum for absorption of other medicaments, etc., we have made a decided move in advance. In all four cases that recovered, the albumin was over 50 per cent. In all the cases, however, the cocaine effectually stopped the vomiting."

When cocaine is used in the treatment of yellow fever, black vomit, or vomiting is not a part of the disease, and what now remains to worry the physician is the danger of suppression of urine, but even here I have seen cocaine in some cases act as a diuretic.

When it is considered how depressed and completely exhausted a yellow fever patient soon becomes after ineffectual efforts to bring up "that lump" from the stomach, one can the more easily realize how much strength, comfort, and perfect relief is given to the patient when this factor of the disease is removed. Before using cocaine in 1887, black vomit occurred in nearly all my cases, but now it never appears when this drug has been used from the start, and rarely does it fail to check the vomiting and put the stomach at rest even when the case has not been seen until the fifth day. (See Chart I.)

To avoid failure in the use of this drug, it should not be administered immediately after giving nourishment, as its effect may be carried beyond the stomach, or even rejected if the patient vomits. This result also is very apt to happen if the cocaine is given in pill or tablet; it is therefore always better to give it in solution and when the stomach is empty, especially ten or fifteen minutes before food, as then the stomach is put in a condition to retain nourishment and at the same time the feeling of nausea disappears and the patient takes the milk or broth, or whatever may be offered, with confidence and relish.

It is well to instruct the patient that he must inform the nurse whenever he feels this nausea returning, so that a dose of cocaine may

be given at once, even if a dose has been given only fifteen minutes before; the object being to keep the stomach quiet. I have found it necessary to give as high as one-half, two-thirds, and even a grain every half-hour or hour if the vomiting is not checked after the first or second dose of ten minims of a four per cent. solution.

I have never seen any toxic symptoms or bad effects of any kind follow the use of this drug in this disease.

Since making these observations my attention has been called to two articles on cocaine by Professor J. M. Da Costa, entitled "Observations on the Diuretic Influence of Cocaine," published in *The Medical News* of June 19, 1886, and "On the Use of Cocaine as a Heart tonic and Stimulant in Typhoid and other low forms of Fever," which appeared in the *Philadelphia Medical Times* of February 5, 1887.

That cocaine acts as a diuretic there can be no doubt. Prof. Da Costa's report shows this, and in yellow fever this same action has not only been noted by Dr. Jennings and myself, but also by Dr. Bettelheim, when he says "in all four cases that recovered the albumin was over fifty per cent." It is scarcely necessary for me to state that the greater the amount of albumin in the urine in yellow fever, the more likely suppression is to take place, and therefore when there is fifty per cent. the prognosis is unfavorable.

CHART I.

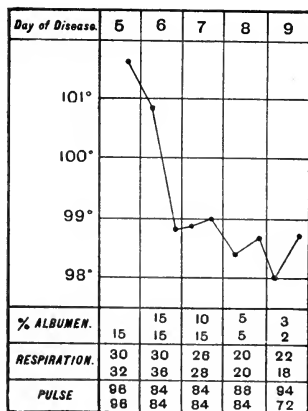
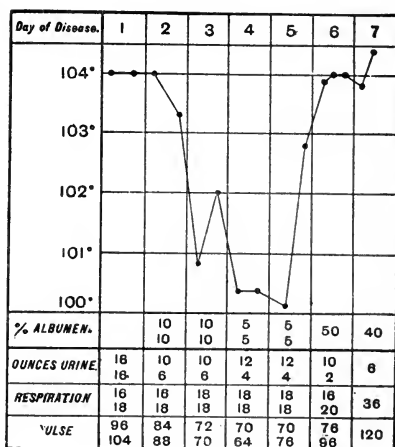


CHART II.



But while cocaine does act as a diuretic, and very beneficially so in this fever, yet I regret to say in this particular it has not always acted as well as I should have liked; reference to Chart II. will show this. Therefore while I have noted the diuretic action of cocaine in this disease and urge its use for this purpose, yet I cannot recommend it so



strongly and with as much confidence, as a diuretic, as I can as a perfect anti-emetic.

I recall the fact that cocaine did act as a "heart- tonic and stimulant" in my cases of yellow fever, but failed to note it at the time, being more occupied with its action in quieting the stomach and keeping up the action of the kidneys.

In summing up the value of cocaine in the treatment of yellow fever, it may be stated to be almost a specific, in my experience doing more to cure this disease than any other drug I have ever tried, taking away or removing all nausea and vomiting, acting as a diuretic and as an excellent and sure "heart- tonic and stimulant."

## NOTES OF A CASE OF CALCAREOUS DISEASE OF THE HEART AND PERICARDIUM.

BY DAVID DRUMMOND, M.A., M.D.

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THE difficulties attending the diagnosis of the case I am about to relate, and its undoubted rarity, are sufficient grounds for the supposition that it will prove of interest to the profession.

Robert G., aged forty-three, a sailor, married, three children, was admitted into the Royal Infirmary, Newcastle-on-Tyne, for cough and shortness of breath.

According to the patient's statement his illness began fourteen weeks before his admission into hospital, with cough and copious expectoration, due to catching cold, to which for some years he had been liable. He was at sea at the time, and though suffering, was able to continue his employment for four or five weeks longer, when increasing shortness of breath and swelling of the legs compelled him to seek rest and medical advice ashore. He now observed swelling of the epigastric region, and deepening in the hue of his already florid countenance. The bowels were constipated; the appetite remained moderate, but he steadily lost flesh. From the beginning he experienced little or no pain.

*Present condition.*—There is decided emaciation. Legs are œdematous. The face is cyanotic, and wears an anxious expression. The right pupil is smaller than the left. The breathing is short and rapid (thirty-two in the minute). The cough is frequent, and accompanying it is a copious, colorless, frothy expectoration. He lies on his right side, and is obviously inconvenienced by the assumption of any other decubitus. The pulse is irregular and weak, eighty-four at the wrist, one hundred when counted with the stethoscope. Temperature normal. He has no pain; his sole complaint is of irritating cough and dyspnoea.

*Chest.*—Heart impulse diffused and heaving, but most distinct in epigastrium and about two and one-half inches below the left nipple. The

heart's action is irregular and tumultuous, and there is a want of clearness and precision about the sounds. A short systolic murmur can be heard at the apex, having no special line of conduction, and another of corresponding rhythm in the tricuspid area. The aortic sounds are very obscure, but seem to be unaccompanied by murmur. The limits of cardiac dulness are masked by emphysema of the left lung on the one hand, and by an area of dulness occupying the front of the right chest on the other. This region is dull on percussion from the first rib down to the liver, and the dulness is absolute in the neighborhood of the third and fourth ribs, one and a half inches to the right of the sternum, where the chest-wall is more prominent than elsewhere. Here the intercostal spaces are obliterated by œdema, which passes down into the right hypochondrium, and the veins are full and tortuous. The left chest is resonant in front. The breath sounds are feeble and distant over the dull area to the right of the sternum, especially toward the lower part. At the apex the sounds are harsh and accompanied by rhonchi, which are obviously conducted from the left side, where rhonchi and puerile breathing prevail. Vocal fremitus and resonance are diminished on the right side. At the back both sides are fairly resonant on percussion, with the exception of an area to the right of the spinal column above the sixth rib, which is dull. In this dull region the breath sounds are tubular though distant, whilst toward the base where the note is resonant, they are very feeble and indistinct though accompanied by râle. To the left of the spine the sounds are harsh as in front. The voice fremitus and resonance are tolerably well marked on both sides, and about equal. On introducing a fine hypodermic needle into the dull area on the right side in front, some clear blood-stained fluid was withdrawn.

*Abdomen.*—The epigastrium and right hypochondrium are full and prominent, especially the latter where the skin is œdematous. The liver is much enlarged and can easily be felt four and a half inches below the sternum in the middle line, and four inches below the arch of the ribs in the right mammary line. The enlargement is smooth and painless, and is but little influenced by respiratory movements. A considerable quantity of free fluid in the peritoneal cavity. No increase in splenic dulness. The urine is high-colored and scanty, but is free from albumin. The temperature is practically normal.

*Previous illnesses.*—Has had cough from time to time since he was a youth, but he attached little importance to it. Of late years a winter cough troubled him a good deal. Never suffered from rheumatism or syphilis.

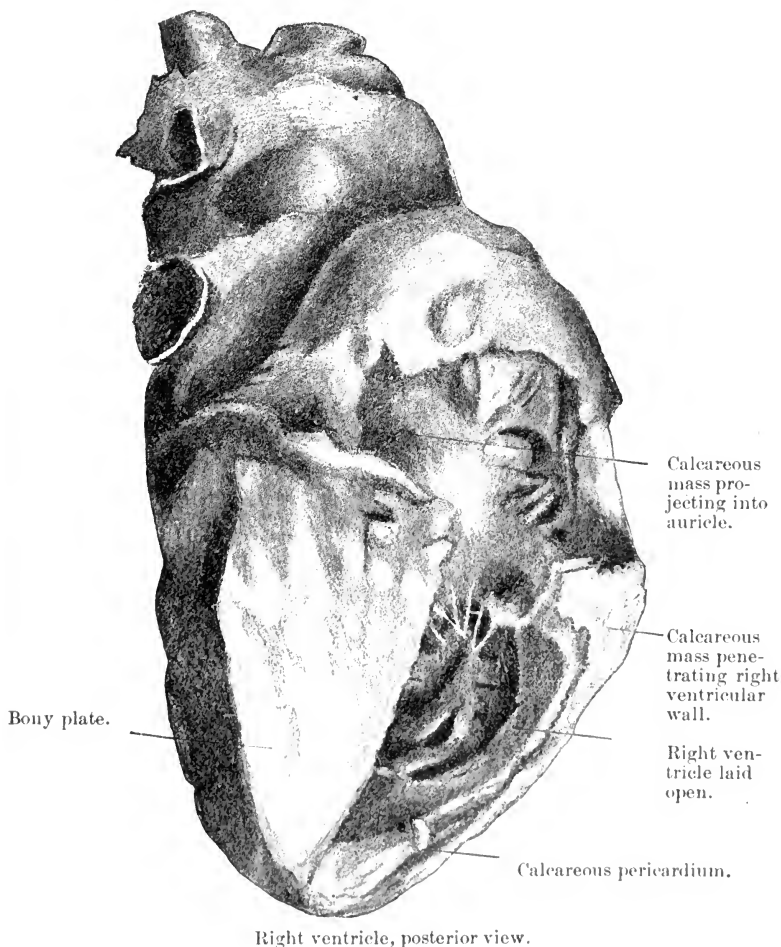
*Family history.*—Is good ; no tubercular diseases that he is aware of.

By degrees the dyspnœa became more distressing and the cyanosis increased. On February 17th, a week after his admission, the expectoration was observed to be blood-stained, and from this time up to his death it usually contained blood, being frequently "prune-juice" in color.

On the 19th, the chest was tapped in front, and seventeen ounces of bloody serum were drawn off, which was followed by a certain degree of relief. The cyanosis deepened rapidly toward the end, and without any very significant change in the physical signs to record, he died on the 21st of February, twelve days after admission into the hospital.

*Post-mortem examination*, about twenty-six hours after death. Rigor mortis passing off. Face and dependent portions of the body livid. Legs œdematous. Abdomen distended; a considerable quantity of blood-stained fluid escaped on opening peritoneum. The sternum was raised with difficulty owing to dense adhesions. The anterior mediastinum was occupied by a large hard mass that at first sight appeared to be a tumor. The right lung was partially collapsed and the anterior portion of its pleural cavity contained bloody fluid. It was adherent toward the base—to the chest-wall posteriorly, and to the hard mass in

FIG. 1.



the mediastinum. The pleura was an eighth of an inch thick. The left lung was emphysematous and free from adhesions; frothy serum exuded from its cut surface.

On removing the contents of the mediastinum, which were very firmly attached behind (spine), to the right (lung), and below (diaphragm), the hard mass filling its lower two-thirds was recognized to be the heart with its pericardial sac adherent. The whole, divested of extraneous structures, weighed one pound and ten ounces.

FIG. 2.

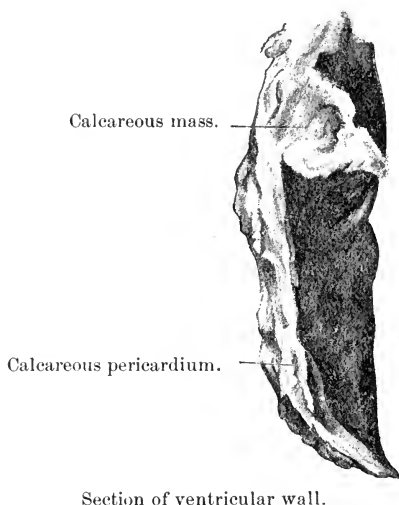
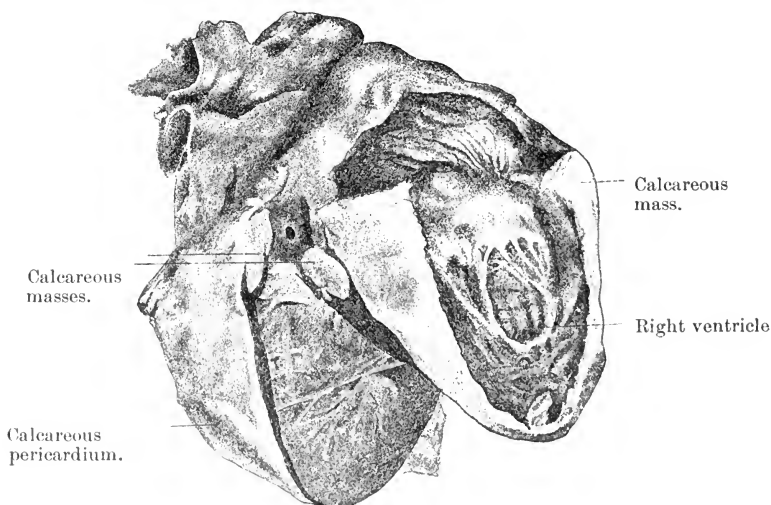


FIG. 3.



The position occupied by the heart in the body was somewhat unusual. It lay almost horizontal, the level of the apex being very slightly

below that of the base. Its shape was peculiar. It was markedly flattened from before backward, and was distinctly wider transversely than from base to apex; it measured, for example, four and a half inches across, and only four inches from base of aorta to apex of left ventricle. The diaphragmatic surface (the true posterior surface) was perfectly flat and triangular in shape. It had been closely attached to the diaphragm and measured three inches from base to apex, with a basic line of three and a half inches. This surface was one solid plate of calcareous material, and had to be cut with a saw. Speaking generally, the outer layer of the parietal pericardium could be dissected off the heart as a membrane, leaving an inner layer firmly adherent and calcareous. In places certainly the whole of the parietal pericardium was membranous, particularly over the upper and posterior part of the right ventricle, and again in other places both the parietal and visceral divisions of the sac were membranous, *e. g.*, on the anterior surface. On removing all that could be dissected off the pericardium, the heart-walls were seen to be composed largely of calcareous matter, arranged irregularly in nodular masses. This material was most abundant at the back and toward the right side of the organ. Running across the front of the left ventricle was a thick ridge of bone-like substance. In some places this was an inch in breadth and in others half an inch. It penetrated deeply into the heart muscle, especially toward the left side, where a wedge shaped nodule the size of a walnut (see Fig. 2) passed quite through the heart, its apex presenting prominently among the columnæ carneæ.

This ridge was firmly attached at both ends to the great bony case that enveloped the heart. The whole of the right ventricle was encased in a dense calcareous envelope, and, as before stated, had to be opened with a saw. The walls of this case varied from a quarter of an inch to an inch in thickness, and they were intimately incorporated with the heart muscle. On its surface were several cavities, the size of small filberts, that contained putty-like material. The whole of the left auricle was practically membranous, but the calcareous case encroached to a considerable extent upon the right auricle, chiefly its posterior surface, in the neighborhood of the entrance of the inferior vena cava. One nodule penetrated between the muscoli pectinati, appearing as a yellow mass on the internal surface of the auricle, covered only by a thin layer of endocardium.

The myocardium generally was friable and pale. The aortic and pulmonary valves were competent, and both vessels were healthy. The tricuspid orifice admitted five fingers, and the mitral four. The mitral curtains were somewhat thickened. The auricles were dilated, especially the right, but no material alteration in the size of the other cavities was observed. The walls of the left ventricle were considerably hypertrophied. The coronary artery was highly atheromatous.

The kidneys and spleen were good examples of the changes that arise from chronic venous stasis.

The liver was large (four pounds, ten ounces), firm to the touch, and on section presented the usual nutmeg appearances, whilst, in addition, the interstitial substance was increased (finely granular cirrhotic). Scattered sparsely throughout its substance were some pale gray nodules, size of a pin's-head, that strongly suggested tubercle, but with this

exception there were no evidences of tubercle found in the body; nor were there any traces of syphilis.

The view taken of the condition of the heart was that the disease had originated as a non-rheumatic pericarditis, perhaps of a tubercular nature, and that myocarditis followed, the deposit undergoing calcareous degeneration. The possibility of an old pyopericarditis with a large collection of pus was entertained, though the history of the case scarcely served to establish the occurrence of so severe a lesion. The fact, also, that the process of calcification had so extensively invaded the cardiac muscle made it difficult to accept the theory that the bony pericardium had arisen simply from inspissation and calcification of incarcerated pus. Notwithstanding this difficulty, my post-mortem room experience of the changes that take place in the pleura in cases of old-standing empyema that have been left alone made me hesitate to discard it. Calcareous pericardium is undoubtedly a rare lesion, and it is one that has seldom, if ever, been diagnosticated during life. Nor is it easy to see how the diagnosis could be made, except, perhaps, in a more or less accidental way by the introduction of an exploratory needle.

The disease suggested by a careful consideration of the signs and symptoms of the present case was mediastinal new-growth. The age of the patient, marked cyanosis, local œdema, bulging of chest-wall, dilatation of veins, and the presence of blood-stained pleural effusion with bloody expectoration, all pointed to that condition. It is a marvellous fact that the patient was able to follow the arduous employment of a sailor before the mast without experiencing any, or only comparatively trifling, inconvenience, when it is considered that for years the bony case must have interfered with ventricular contraction.

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## AURAL VERTIGO ENTIRELY AND PERMANENTLY RELIEVED BY EXCISION OF THE MEMBRANA TYMPANI AND THE MALLEUS.

BY CHARLES H. BURNETT, A M., M.D.,

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AURAL vertigo may be due to disease of the external, the middle, or the internal ear. The name "Ménière's disease" was originally applied to a disease of the internal ear, characterized by sudden and intense deafness, nausea and vertigo, and to this form of aural vertigo it should still be limited. But much confusion has arisen by applying the name Ménière's disease to all forms of aural vertigo, regardless of their origin. The general term, however, should be aural vertigo, and Ménière's dis-

ease should be used to designate an aural vertigo caused by disease in the internal ear, which, however, rarely, if ever, exists.

The form of aural vertigo in the case about to be described, and which was cured by the operation of excision of the membrana tympani and the malleus, was a middle ear-vertigo, as will be shown in the notes of the case which follow :

Miss A. V. D., aged thirty-one, first consulted me, regarding deafness in her left ear, in November, 1881. She had suffered in childhood from earache and suppuration in the now deaf ear. Gradually the hearing had failed in this ear until it interfered with her avocation of trained nurse. Latterly there had been persistent, loud, high-pitched, and distracting tinnitus in her left ear, with a sensation of confusion in the head. She feels depressed and cannot do her work as well as she desires. Hearing in the affected ear was six inches for isolated words. The tuning-fork vibrating on the vertex, was heard best in the affected ear.

The membrana tympani of the left ear was white, thick, and flattened, but there were no visible cicatrices on it. The pharynx and nares showed symptoms of hypertrophic catarrh. The left tympanic cavity was inflatable by various methods. Treatment of the naso-pharynx relieved the catarrhal symptoms of those parts, but deafness and tinnitus remained unaffected by the treatment, which was conducted for two months.

The patient then moved to another city, and passed from my observation for over six years. In the autumn of 1887, she wrote to me stating that the tinnitus in her left ear had grown much worse and she experienced attacks of vertigo, evidently due to the noise and irritation in her left ear, and she inquired whether I could suggest anything for her relief. I suggested the operation of excision of the membrane as a possible means of relief, stating that I could speak more positively after examination of her ear. In the spring of 1888, she came to Philadelphia for further examination and the operation I had suggested, if such appeared advisable after examination.

On May 16, 1888, the patient called to see me, and I found that her general health had improved during the last two years, since she had abandoned nursing. An examination of the left ear showed that the membrana tympani was white, retracted, and adherent to the inner wall of the drum-cavity, but movable under the pneumatic speculum except in the line of the malleus. The hearing was the same as six years before; six inches for the voice.

The tinnitus was constant and distracting, and there was a permanent sensation of pressure in the ear, and attacks of ear vertigo had been increasing in frequency and intensity for a year. At times the latter were so severe as to oblige the patient to hold on to a lamp-post for support when a vertiginous attack occurred in the street.

Being now convinced that the tinnitus, the sense of aural pressure, and the attacks of vertigo were due to an inward pressure exerted by the retracted membrana tympani and the chain of ossicles upon the labyrinth-fluid and hence upon the nerves in the internal ear, I suggested the excision of the retracted and adherent membrana and malleus, as the only means of permanently relieving the abnormal labyrinthine pressure

and the disagreeable symptoms caused by it. It was hoped that the removal of the membrana and the adherent malleus would free the incus and the stapes and allow the latter to retire from its impacted position in the oval window and thus take off its pressure upon the fluid in the vestibule.

No hope of relieving the deafness by this operation was held out to the patient; although the operation does improve the hearing in some cases. But the patient declared that she would be entirely satisfied if the operation would relieve the tinnitus and vertigo, regardless of the effect on the hearing. Therefore on May 21, 1888, the patient was placed on a bed, her head and shoulders slightly elevated, and etherized. She was then placed in front of a window looking toward the south, so that light could be reflected into the left ear. It had been my intention to illuminate the ear by means of an electric lamp (four candles) supported on the operator's forehead and supplied by a small portable storage battery, made for this purpose by the River and Rail Electric Light Company, of New York, and the apparatus was ready at hand. But the daylight happening to be suitable for the purpose in this case I used it by reflection from a forehead mirror for lighting my way in the operation.

The first step in this operation may consist in excising the posterior upper quadrant of the membrana tympani, exposing the incudo-stapedial joint, and then separating the incus from the stapes. The slight hemorrhage thus caused may be checked by mopping the cut surfaces with a five per cent. solution of cocaine muriate. Instead of such an initial procedure the initial incision may be made behind the manubrium of the malleus close behind the short process, running well upward and downward from this point. This should be made with a small curved knife, the blade of which is 1.5 cm. long and 2 mm. wide at its widest part, running to a point, and attached to the usual slender shaft employed in aural instruments. The next step is the severance of the tendon of the tensor tympani muscle. This is accomplished by means of a knife, 1.5 cm. long and 2 mm. wide and rounded at the point, curved in the plane of its surface, so as to pass partly around the malleus, with cutting edge upward. As soon as the edge of the knife strikes the tendon the peculiar resistance thus offered is recognized and a gentle upward pressure of the delicate blade severs the tendon. This knife is one proposed for tenotomy of the tensor tympani, by Gruber, of Vienna, some years ago. After tenotomy was done the entire membrane was cut away around its periphery by means of a straight, probe-pointed knife, devised for this purpose by Dr. Samuel Sexton, of New York. The circular incision was begun close up to the neck of the malleus in the initial incision, severing the suspensory ligament and the posterior fold of the drum-membrane, sweeping then around the periphery to the opposite side of the malleus, cutting through the anterior fold and ligament, up to the neck of the malleus. The malleus and the membrana tympani still attached to it were then removed by means of delicate and slender forceps. Inspection revealed a strip of bone, thread-like, 3 mm. long, running from the lower end of the manubrium inward toward the promontory, and which had evidently bound the mal-



leus to the inner tympanic wall, and explained the adhesion which had been diagnosticated before the operation. The hemorrhage, which was slight, was easily controlled by the five per cent. solution of cocaine muriate already named.

As soon as the patient recovered from the etherization, she stated that the tinnitus was very much less and that the sensation of fulness and pressure in her ear had greatly diminished. She remained in bed twenty-four hours, by my direction; on the third day she went out walking. The tinnitus was now barely audible, and its note had become much lower in the musical scale. There was no sense of fulness in the ear, nor was there any tendency to aural vertigo. There was no inflammatory reaction in the ear, nor was there any bleeding. The hearing was unaltered. A tampon of cotton impregnated with iodoform was worn *lightly* in the auditory canal.

The patient remained under immediate observation one week, during which time she expressed herself as feeling the greatest relief in her ear. There was no discharge of any kind from the ear, and there was yet no sign of regeneration of the membrane.

Under date of June 4, 1888, the patient wrote that "though some tinnitus is still heard, she feels better than when she left Philadelphia." There was no sensation of fulness in the ear, which had so long distressed her, nor had she felt any vertigo.

Under date of June 12, 1888, the patient wrote that "a slight discharge had come from her ear, but that in other respects the benefits of the operation had been maintained; that she felt no tinnitus, sense of fulness nor vertigo."

Under date of July 13th the patient wrote that "she had had the ear mopped with a two per cent. solution of carbolic acid, and then insufflated with finely-powdered boric acid, at my suggestion, because the discharge had annoyed her and there had been some pain in the ear. This discharge ceased in a few days under this treatment, and there has never been any return of it." I was then informed by Dr. Randolph, of Baltimore, Md., where the patient resides, that a new membrane was forming. The patient further stated that the noise in ear had now become so slight that she had to stop and listen for it, if she wished to hear it, so that it had practically ceased, and there had been no attack of vertigo, and she further wrote that "the relieving of either of these distressing symptoms would be sufficient to make me glad to have had the operation performed."

In September, 1888, I was able to examine the ear, and found that a new membrane had formed, that there was no return of tinnitus, fulness in the ear, nor of the attacks of vertigo.

On September 20, 1889, I examined the ear again and found that the new membrana was still intact, and that it moved easily inward and outward under the alternate condensation and rarefaction of the pneumatic speculum. There has been no return of tinnitus, nor of vertigo, and the past year has been one of uninterrupted health and comfort in the ear. The hearing remains unaltered, viz., about six inches for the voice, in the operated ear. The right ear is entirely normal.

I am not aware that the operation of excision of the malleus and the membrana tympani has ever been performed for the relief of symptoms

of aural vertigo, often miscalled Ménière's disease. It has been performed,<sup>1</sup> however, in cases affected with tinnitus aurium, and other aural indications for the operation, with relief to the subjective noises in the ear.

Politzer<sup>2</sup> has suggested, as I learn since the above operation was performed, that

“When the membrana tympani is highly concave, or when there are cicatricial adhesions between the membrana tympani and the inner wall of the tympanic cavity—conditions, therefore, which may indicate an over-weighting of the stapes and an increase of the intra-labyrinthine pressure as the cause of the symptoms (of vertigo), we should endeavor to diminish the pressure by rarefying the air in the external meatus. . . . Should this manipulation not succeed, or its success not last long enough, then we are justified in trying incision of the tense posterior fold of the membrana tympani or of a tense cicatrix.”

But he has not performed, so far as I can find out, the more radical and highly satisfactory operation of excision of the retracted and adherent membrana and malleolus.

We learn from this case:

1. That tinnitus and aural vertigo may be due entirely to disease in the middle ear, and therefore should not be referred always to a lesion in the internal ear.

2. The tinnitus and vertigo were evidently caused by the impaction of the stapes in the oval window and pressure on the labyrinth-fluid induced by the retraction of the malleus. The removal of the latter liberated the stapes, and relieved the tinnitus and vertigo caused by its inward pressure upon the fluid of the vestibule and mediately upon the peculiar nerve-fibres in the semicircular canals.

3. The deafness which still exists is probably due to atrophy of auditory nerve-fibres, from long-continued compression exerted by the compromised lymph in the labyrinth.

4. It is also seen that nothing but good resulted from the operation in this case, and that the benefit is still maintained after a lapse of sixteen months. We may therefore conclude that this would always be the result in a case with similar indications for the operation. If a discharge sets in after the operation, it is easily checked. Excision is almost invariably followed by the formation of a new membrane. The latter has no retractive power, however, as it possesses no ossicular connection with the middle ear. Hence, the new membrane is attended by no return of tinnitus or vertigo.

<sup>1</sup> Schwartze: Die Chirurgischen Krankheiten des Ohres, p. 288.

<sup>2</sup> Diseases of the Ear. American edition of Cassell's translation, p. 710.

## REVIEWS.

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CYCLOPÆDIA OF THE DISEASES OF CHILDREN, MEDICAL AND SURGICAL. THE ARTICLES WRITTEN ESPECIALLY FOR THE WORK BY AMERICAN, BRITISH, AND CANADIAN AUTHORS. EDITED BY JOHN M. KEATING, M.D. Vol. I. Illustrated. 8vo., pp. xiii. 1003. Philadelphia: J. B. Lippincott Company, 1889.

As we are told in the preface of this work, it is to consist "of a collection of monographs—not mere dictionary articles—arranged in the form of a systematic treatise, and devoted to the consideration of the anatomy, physiology, medicine, surgery, and hygiene of infancy, childhood, puberty, and adolescence." It is but natural that the publication of such a book, with so comprehensive a purpose in view, has been anticipated by the American profession with more or less doubt as to the fulfilment of its mission. So much more was this the case as the great number of physicians, although brought into daily contact with children's diseases, have not been in the habit of consulting those publications especially devoted to this branch of medicine. Indeed, if the truth must be told, it will be matter of considerable astonishment to those who have not watched the development of pædiatrics, to find that so much has been done and is being done in a branch not uncommonly considered as unimportant because of our supposed lack of definite knowledge. When we take into consideration that the mass of literature is scattered among so many journals and publications, it seems almost incredible that so much good work should have been done. There are, to our knowledge, only five journals in the whole world exclusively devoted to pædiatrics, and it is a matter of some pride to be able to state that this country possesses one of them.

In the introductory article of the work Jacobi complains, with sufficient justification, that the colleges of this country do not consider pædiatrics sufficiently important to establish chairs of pædiatrics, although this has been done in Germany, Austria, France, Italy, Russia, and Sweden. Notwithstanding all these drawbacks, a goodly number of men have furnished us with a work on diseases of children—men who seem to be conversant with special manifestations as shown at this period of life. In his introduction Jacobi states that pædiatrics is not to be looked upon as a specialty, and then, briefly, goes on to state how much special knowledge is required, how the child differs from the adult, etc., and he urges the creation of a special chair in our medical school for the teaching of this special branch. If there is any odium attached to the scientific practice of a specialty we are willing to drop any possible claim to pædiatrics as a specialty; if not, it seems almost like splitting hairs to define a specialty as the practice devoted to one organ, thus ruling out pædiatrics, when nowhere in medicine than among children is more special knowledge required—anatomical, physiological, therapeutic, pathological, clinical—in order to cope successfully with disease.

Part I. of the work is devoted to general subjects. Dr. McClellan treats of the anatomy of children, and in an article of fifty pages sums up the subject. It contains many very valuable illustrations, most of them from photographs taken by the author.

The "Physiology of Infancy," by Angel Money, of London, treats of a subject upon which the results are comparatively few and scattered over the whole literature of medicine; as the author states, it "is a comparatively unworked field." What is given is well done, and what has not been given can be excused by the statement: "In this work nothing but what has practical bearings or actual utility can be given, for the author prefers to present a clear, if meagre, outline rather than a confused picture of details."

Next follows a most excellent and exhaustive article on "Diagnosis," by Finlayson, of Glasgow. It is very gratifying to find such strong language in regard to teething as the following, coming, as it does, from one who has done so much in diseases of children as Finlayson: "It may still be a moot point how far a child is made ill by teething; but if the beginner is ever to make any progress in the diagnosis and treatment of the diseases of infancy he must take up the attitude of refusing to believe that any child is ever seriously ill from teething," etc. Indeed, it is remarkable to observe throughout the volumes how very careful authors have become not to lay too much stress upon teething as an etiological factor.

Then follows a brief but very good article upon the "Influence of Race and Nationality upon Disease," by J. Wellington Byers, which, in its turn, is followed by the "Outlines of Practical Bacteriology," by Shakespeare. Of the latter it can be said that it is too short to cover the whole ground and too long to make it purely an "outline." Indeed, the feasibility of introducing an article upon this subject, even from so high an authority as its author, may be doubted. Bacteriology now belongs to the so-called theoretical branches, and the subject itself is so vast and full of details that those who know it are not going to be benefited very much by this most excellent article, and those who do not know it are certainly not going to hunt for knowledge in a work on diseases of children. To our mind, this is the only case in the work in which the judgment of the editor can be seriously questioned. How much more valuable would have been an article on bacteriology as applied to diseases of children.

A very interesting and carefully prepared article on "Maternal Impressions," by W. C. Dabney, follows. The author is a firm believer in the connection between maternal impressions and "mental and bodily defects" in the child. A series of cases is reported and conclusions are drawn as to the duration, the character and nature of the impressions and their effects upon the fetus. The chapter on "Diseases of the Fœtus," by Hirst, although brief, is very comprehensive.

R. A. F. Penrose has contributed a charmingly written though incomplete chapter on the "Care of the Child at Birth." It contains an apotheosis upon the cradle in the nursery, a plea for its continuance, and the following remarkable "suggestion": "Would not the soothing influences of a cradle on the nervous system of infancy have rendered that system less irritable, and consequently less disposed to be injuriously affected by the innumerable causes of nervous disease incident to the whirl of modern life?"

The subject of "Infant Feeding and Weaning" is handled by Rotch,

with a great deal of skill and originality. Much in this article is the result of original work done in a field in which original work is of great importance. In the scope of this review it is impossible to go into detail, but the theory of the dependence upon chemical analysis for the quality of the food and upon post-mortem examination of the stomach for the quantity, although not strictly new, forms the foundation of the author's ideas of infant feeding. To this he adds certain biological quantities, such as intervals for feeding, the effects of lower forms of life, etc. He is opposed to the use of artificial foods, and "they have a place in this article simply because there is no doubt that they are kept in the market by the physician rather than by the manufacturer." The whole forms a most interesting chapter treated of by one who has thoroughly worked up the subject. "Wet Nurses," by Parrish, "Diet after Weaning," by S. Adams, finish the subject of infant and children's food.

The article on the "Nursing of Sick Children," by Miss Catherine Wood, of London, might be considered highly appropriate in a work written for nurses. It is just possible that the opponents of trained nurses might even there consider it as too medical for nurses and too "nursey" for the physician. "The Hygiene of the Nursery," by Dr. L. M. Yale, contains many valuable hints, but, as might be expected in any such article, a great many things must be done to prevent "catching cold!"

A short, concise article on "Dentition," by Dr. John Dorning, followed by a carefully prepared exhaustive paper on "Puberty," by Thomas More Madden, M.D., ends the first part of the work.

If any criticism could be indulged in regarding this first part, it would be that theoretical considerations have not been sufficiently treated. It would naturally be expected that everything that has ever been done in this connection would be thoroughly discussed. The reader who expects to find this will be disappointed. On the other hand, and this is the best possible excuse that can be offered for this deficiency, this work virtually introduces the new development of pædiatrics to an English speaking medical public. In such a work the discussion of details would be decidedly out of place, and the practical application of any subject is the one to be looked after. Notwithstanding the validity of an excuse, an explanation must still be given for a deficiency which is the more deplorable as, unfortunately, everything is tending to the purely practical in this country, so that, unless more encouragement be offered the theoretical worker, the near future will see us even weaker than we are at present in this direction.

Part II. opens with a consideration of "Fever" by William Pasteur, written in a masterly manner. Both theory and practice are carefully taken into consideration, and the deductions are most accurately followed out. The article on "Typhoid Fever" is just such a one as might be expected from its conscientious author, J. C. Wilson.

Lewis Smith contributes two long articles to this volume; one on "Cerebro-spinal Meningitis," the other on "Diphtheria." Both of these articles are carefully prepared and well written. It is a pity that the latter article could not contain the researches of D'Epine, Roux, and others of the later French authors who have contributed so much to the theory of diphtheria.

"Scarlet Fever" is treated by Busey. In these days of copious writing it is pleasant to meet some one who can be concise, even at the expense of completeness. The article is valuable, more as an expression of the

author's views and experiences than in any other direction, and the author's views and conceptions are usually worth reading.

"Measles" is even more briefly treated than "Scarlatina." A little over eight pages, including the history of the disease! Waxham has surely not said all that can be said upon the subject, and the following article by W. A. Edwards, M.D., contrasts very favorably with the former. Edwards gives a complete historical development of his subject, and has made a thorough *résumé* of the whole subject from various literary sources.

T. M. Dolan contributes the article upon "Pertussis." He does not believe in the possibility of aborting the disease, but he makes no specific reference to any attempts in this direction. He is willing to accept the bacteria of Afanassieff, but cannot conceive of the possibility of destroying them any more than the poison of scarlatina, measles, smallpox, etc.

Variola has found a worthy pen in the hands of Blackader, and Plant contributes a brief article upon "Vaccination."

One of the best articles in the volume is that by W. B. Cheadle on "Rheumatism," who thinks "the common and immediate cause of rheumatism is chilling of the surface of the body;" that the disease is extremely common in early life, and that there is some connection between chorea and rheumatism (twelve interesting cases are recorded in this connection). The results of the "Collective Investigation Committee" are fully used, and valuable as they are, some new aspects have developed which seem important.

Guitéras has written a most interesting chapter on "Yellow Fever." He shows that yellow fever is very common among children, much more so than is usually believed, and that it is usually overlooked or diagnosticated incorrectly. The chapter on "Dengue," by Rudolph Matas, M.D., is not only a valuable contribution to our knowledge, but also a very complete summary of what is known upon the subject.

The volume closes with a methodically and carefully written paper on the "General Therapeutics of Children's Diseases," by Bartholow.

If we were to record our impressions of this second part, they could be formulated as follows: There are a great many most excellent articles, some of which our brief space prevents us from even mentioning, but some fall far below the mark that ought to be drawn for a work of the character of this cyclopædia. It would be futile to attempt to look for the causes. No work like this cyclopædia has ever been published in which articles of every description, good, bad, and indifferent, cannot be found. It is not saying too much to state, however, that, as a whole, the volume will bear a favorable comparison with any other volume of like description.

F. F.

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A TEXT-BOOK OF ANIMAL PHYSIOLOGY, WITH INTRODUCTORY CHAPTERS ON GENERAL BIOLOGY, AND A FULL TREATMENT OF REPRODUCTION, FOR STUDENTS OF HUMAN AND COMPARATIVE (VETERINARY) MEDICINE AND OF GENERAL BIOLOGY. By WESLEY MILLS, M.A., M.D., L.R.C.P. (Eng.), Professor of Physiology in McGill University and the Veterinary College, Montreal. 8vo., pp. 700. New York: D. Appleton & Co., 1889.

A SUBJECT is always more or less illuminated when a writer who, like Dr. Mills in physiology, has contributed to it original investigations,

undertakes to give in a concise manner the general results of his pedagogic experience; and in this period, when the methods of teaching are exciting so much thought and discussion, the opinions of an experienced teacher are of peculiar interest.

In view of such text-books on physiology as those of Foster, Landois and Stirling, Kirkes, Yeo, Martin, and Huxley, the writer of a manual owes some excuse for increasing the dilemma of the student, who must select his text-book largely according to his own judgment.

In his admirable preface Prof. Mills points out inferentially that it is the meaning of physiological facts, their relation to life and living, and physiological methods as a key to scientific study in general, that he desires to impress upon the student. He premises the importance of the student's keeping constantly separate the well-determined facts of physiology from theories which have been propounded to unite and explain them; and thus endeavors to place him as nearly as possible in the position of an original investigator. Admirable also is the design of impressing upon the student the functional interdependence of all the parts of the body.

As to the plan which the author has pursued in carrying out his ideas concerning the proper methods of teaching, we certainly see exhibited a breadth of scope which is nearly ideal. The book begins with a general description of cells, animal and vegetable, which leads to an epitome of general biology and to a discussion of the origin of the forms of life, following which is a rather elaborate account of animal reproduction and development. Nearly one-fifth the space of the whole work is thus consumed before the subject of physiology itself, usually so called, is reached.

The work makes but little pretence of touching the histology of the tissues concerned, but more or less elaborate treatment is given of comparative physiology under each topic introduced. In an appendix, as in the well-known text-book of Foster, is considered the subject of animal chemistry. The work is abundantly illustrated by figures, original and otherwise. The author is to be congratulated upon his diagrams illustrating the hypothetical play of physiological processes. The printer and engraver have done their work well.

As remarked in the beginning, the scope of this work is of almost ideal breadth. But every teacher has learned through chastening that expediency must limit the field which he dare attempt to cover in any given subject or with a given set of pupils. We doubt if there is in any educational institution in the world time enough allotted for the completion of a course in physiology proper which shall embrace besides, a comprehensible discussion of embryology, the doctrines of evolution, comparative physiology, and even in the most rudimentary way, comparative morphology, without seriously slighting the teaching of physiology, even that narrow branch which may be called human physiology. Those subjects belong more properly to the preliminary medical or academic curriculum, and their introduction for the first time before a class of medical students is prolific with the danger of substituting superficial expansion for depth of knowledge.

Were the lines written by Dr. Mills sure of always finding as able an oral expositor as himself we would find little to say in adverse criticism of them; but it seems to us that in his discussions of physiological questions he has been led too often into elaborating special themes without

showing the real meaning and importance of the subjects considered, and he frequently warns the student not to draw hasty conclusions from the experimental facts of the subject, when equal care devoted to harmonizing and reiterating our certain data of knowledge might have given a clearer, more satisfactory, and more easily remembered conception of life processes. It is a mistake to attempt to make the student a critic and a disputant before he has a working knowledge of the facts with which he is dealing.

Frequently throughout the book we have to admire the author's selection, from among a mass of material, of the subjects chosen for special mention. The chapters on Embryology are thus particularly worthy of admiration; and the author has here wisely limited his teaching, as far as possible, to the gross appearance of the developing ovum rather than attempting in a didactic course to explain the meaning of microscopic sections.

We have the heartiest approval for the author's plan of introducing facts of comparative physiology and insisting on their distinction from those of the human side of the subject; but we must reiterate the statement that in a text-book designed particularly for medical students the facts and reasonings which appertain more particularly to human physiology must be especially dwelt upon; for nothing is more certain than that the average student is incompetent to discover for himself those analogies by which the subject of human physiology has been so largely built up through the study of the lower animals.

Dr. Mills exhibits often an ultra-sceptical, not to say cynical, estimate of the importance of current physiological reasoning, which, however admirable a characteristic in a laboratory worker, seems hardly judicious in a didactic teacher. The philosophical bent of the writer's mind leads him to many general statements which, though replete with meaning to one familiar with the facts and views of modern biology, must, when unelucidated by the teacher, be hopelessly obscure to the plodding student. Not to be hypercritical, however, it must be understood that these animadversions refer only to the inaptitude of Dr. Mills' work as a class-book for the medical student—particularly the American medical student.

In thus saying that the book is not "practical" under the ordinary conditions of our medical teaching there is given perhaps no mean tribute to its worth as a broad and truthful exponent of modern biological knowledge.

It is impossible in so limited a space to give more than the general impression produced by this work. It would be injustice not to add that the volume is replete with paragraphs which bespeak the wide learning, careful thought, and pedagogic skill of their author. This text-book of animal physiology must long be of especial value to the advanced student or teacher of physiology for whom Living Nature is not all represented by the few animals commonly used in vivisectional experiments.

H. S.



DISEASES OF WOMEN: A MANUAL OF NON-SURGICAL GYNECOLOGY, DESIGNED ESPECIALLY FOR THE USE OF STUDENTS AND GENERAL PRACTITIONERS. By F. H. DAVENPORT, A.B., M.D., Assistant in Gynecology, Harvard Medical School; Assistant Surgeon to the Free Hospital for Women; Physician to the Department of Gynecology, Boston Dispensary. With numerous illustrations. 12mo., pp. xiv., 317. Philadelphia: Lea Brothers & Co., 1889.

THE objects of this attractive little book, as set forth in the modest preface, are "to give the student clearly, but with considerable detail, the elementary principles of the methods of examination, and the simple forms of treatment of the most common diseases of the pelvic organs, and, in the second place, to help the busy general practitioner to understand and treat the gynecological cases which he meets with in the course of his every-day practice." We have no hesitation in expressing our satisfaction with the manner in which the author has accomplished his purpose. The book cannot fail to be helpful, since it represents the practical experience of an earnest and successful teacher. The gynecology which he teaches is that which a gentleman would practise; we need just such a spirit of delicacy and consideration among our coming specialists to offset the foreign idea that patients are only "cases."

The introductory chapter contains some excellent general advice on the treatment of pelvic troubles. Chapter II., on methods of examination, is marked by thorough common sense and the absence of useless details; we commend especially the paragraphs on the bimanual examination and the concluding one on the examination of young girls. The four chapters on the disorders of menstruation contain exactly such definite information as the general practitioner looks for in vain in the larger textbooks. The subject of displacements receives the attention which its importance demands; we do not believe that the reader will find elsewhere a clearer exposition of the action and mode of introduction of pessaries. We regret that the author has retained the antique instruments for antelexion, the use of which (if they are ever to be used) demands more experience and judgment than should be expected in any other than a specialist; he atones for this, however, by his faint praise of the intra-uterine stem.

The concluding paragraph of Chapter VII., on the treatment of displacements with adhesions, is exceedingly good. We commend also the sensible remarks on leucorrhœa in Chapter VIII., and the safe and conservative section on the use of tents. Metrorrhagia, diseases of the ovaries and tubes, and pelvic peritonitis and cellulitis form the subjects of Chapters XI., XII., and XIII., and are treated with a fulness of detail which renders them invaluable to the general practitioner.

A short chapter on instruments concludes this manual, which we regard as a distinct improvement upon any of its class that have yet appeared, for several reasons. In the first place, the author at the outset clearly defines the scope of his work, and to his plan he rigidly adheres. He attempts no ambitious flights, but what he does is done thoroughly and conscientiously. He knows what he wishes to say, says it, and then stops—no mean accomplishment in this verbose age. The great fault in

all descriptions of gynecological operations and manipulations is the absence of details; the pathology may be exhaustive, the symptomatology graphic, but if the reader finds only vague, general directions with regard to treatment, a treatise on diseases of women possesses but little practical value for him.

Dr. Davenport has wisely brought into prominence the non-surgical side of gynecology, one which is in great danger of being lost sight of in view of the rage for operative treatment. Every teacher must have been struck with the diminished interest which students take in the minor details that are of more practical importance to them than is the technique of laparotomy. The patient, persistent treatment of pelvic troubles is not popular. But we predict that the pendulum will swing in the other direction. The time will come when student and practitioner will realize that however brilliant may be the possibilities of surgery, the laurels of the coming gynecologist are to be won in the more homely field of non-surgical treatment. Then the true value of this book will be appreciated.

H. C. C.

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A TREATISE ON THE SCIENCE AND PRACTICE OF MIDWIFERY. By W. S. PLAYFAIR, M.D., LL.D., F.R.C.P., Professor of Obstetrics in King's College, etc. Fifth American from the seventh English edition. WITH NOTES AND ADDITIONS. By ROBERT P. HARRIS, M.D. 8vo., pp. 671. Philadelphia: Lea Brothers & Co., 1889.

THE seventh English and fifth American edition of this standard text-book appears enlarged in number of pages and enriched by recent illustrations. With a strong impress of the country in which it is written, it presents obstetrics in a thoroughly intelligent and clear manner. It is especially well up in its treatment of extra-uterine pregnancy, and, as would be expected from its American editor, in the consideration of Cæsarean section and allied operations. We miss, however, certain points in practical obstetrics recently established by Continental workers.

In the treatment of abortion the necessity for the strictest antiseptic precautions is not made impressive, and the advisability of emptying the uterus by the finger or curette and rendering its cavity aseptic in incomplete abortion is not forcibly stated.

We are glad to note a procedure for protecting the perineum, whereby the advantages of the rectal method of relaxation are gained without its decided objections. No mention is made of perineal protection by combined manipulation, the right hand supporting the perineum, the left restraining the head, which is most efficient in difficult cases, and episiotomy is unduly slighted. In view of its extensive use on the Continent, a decided prejudice against chloroform is expressed by the editor which is hardly warranted.

In the treatment of post-partum hemorrhage the intra-uterine use of iron is allowed, although its dangers have been repeatedly proven, and a modern method, the employment of an antiseptic gauze tampon carried to the fundus, is not mentioned. In the treatment of rupture of the uterus, Breisky's success and that of others with the iodoform gauze or

wicking tampon for incomplete rupture are not admitted, but laparotomy is urged. In the forceps and embryotomy modern instruments and methods are omitted. Although transfusion is treated of at length, the deep injection of sterilized salines in the inter-muscular septa is not mentioned.

In the directions given for the use of antiseptics, bichloride solutions 1 to 2000 are advised, although such a solution has in some cases produced fatal poisoning. In many of the most extensive maternities of the Continent, and quite usually in America, bichloride solutions have been diluted to 1 to 4000 or 5000 when used for douches. No mention is made of creolin.

Sterilized milk has not found favor with the author, and he adheres to the belief that a chemical equivalent for breast milk is most to be desired.

In the treatment of eclampsia we are glad to note a discrimination in advising bleeding, which is limited to apoplectic cases. The hot bath and the diuretic use of calomel are not mentioned.

In the treatment of septicæmia much that is interesting and valuable is given; we regard the intra-uterine douche, although valuable, as an agent whose employment is attended with risk to the patient from poisoning and the possibility of conveying added infection, and this aspect of intra-uterine injections is not impressed upon the reader.

The tone of the book is local, rather than cosmopolitan, and its omissions result from this. Its excellences are so many and so great that it cannot fail in the esteem of those who have welcomed each previous edition: for those reading English only, it will always be a most valued guide.

E. P. D.

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A TEXT-BOOK OF HUMAN PHYSIOLOGY. By DR. L. LANDOIS, Professor of Physiology and Director of the Physiological Institute, University of Greifswald. THIRD AMERICAN, TRANSLATED FROM THE SIXTH GERMAN EDITION. WITH ADDITIONS BY WILLIAM STIRLING, M.D., Sc.D., Blackenbury Professor of Physiology and Histology in the Owens College, and Professor in the Victoria University, Manchester; Examiner in Physiology, University of Oxford. 8vo., pp. 974. Philadelphia: P. Blakiston, Son & Co., 1889.

No better evidence of the great value of this book can be asked for than that another edition has been demanded by the profession. When we take into consideration that this work is one that goes into all the more abstruse physiological questions, and that, considering the space, it is a perfect encyclopædia of physiology, both authors are to be congratulated upon the success with which their supply has met the demand. No little praise must be accorded the editor, for if we compare this last edition with the last German it will be seen how great was the task which he has so successfully performed. Indeed, one almost wishes that Professor Stirling had himself written a book: although the German edition is far ahead of any other physiology in that language, yet Prof. Stirling has added very much to it which should be incorporated into the original. In comparing German with this English work on

physiology, one is almost tempted to make reflections on the proverbial German thoroughness. But physiological scientific work is not confined to Germany, and there is a generation of English-speaking workers growing up who will make the Germans look to their laurels. This will not be unpleasant to the English-speaking student who works in a German physiological laboratory.

The work that has been done upon this edition can be summed up as follows: Everything has been added to make the book complete up to the time of publication; and, secondly, many new things have been added to make old ones more easily understood. In order to do this about fifty pages of matter have been added, including two appendices and nearly two hundred illustrations. The first appendix gives a short, but sufficiently complete, account of physiological bibliography, and the second is a "Comparison of the metrical with the common measures," by Dr. Warren De la Rue. Among the new things added we find Fleischl's hæmometer, quite an extensive description of the relation of the thyroid gland to the body, in health and disease; the whole subject of digestion has had extensive additions made to it, all excellent—for instance, a splendid diagram of the nerves of a salivary gland; and all the bacteriological work of recent years has been added. The chapter upon Animal Heat has been enlarged and that upon the Urine has had many additions made, chiefly of a practical value (Esbach's albuminimeter, new illustrations of tube casts and crystals). Most of the additions are found in connection with the physiology of the nervous system. It is not improper to state that no work of the size of this one contains so compact and clear a description of the physiology of this portion of the body as Landois. The plan of the book—a combination of practical application with theoretical discussion—makes this chapter especially valuable to the practitioner. Indeed, the whole work can be said to be invaluable to the physician, who has not the time to look over the special literature of physiology, and who needs all that can be given him in connection with physiology. F. F.

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INTRODUCTION TO THE TREATMENT OF DISEASE BY GALVANISM. By SKENE KEITH, M.B., F.R.C.S. Edin. 8vo., pp. 63. London: Truslove & Shirley, 1889.

THIS little brochure, as the title indicates, is but an introduction to the study of electricity as applied to therapeutic purposes. The directness and clearness with which it is written are characteristic of the author, and it is difficult to see how a subject involving so much that is mathematical could be made more plain. We have always insisted that a good working knowledge of electricity, as a therapeutic agent, must presuppose a knowledge of the fundamental principles of electricity as a physical force. A man may go to sea without an accurate knowledge of navigation, he may even go to sea without a compass, but no one with any sense would consider such a plan laudable. It is the same if one would obtain the best results from the subtle agent which we call electricity. We commend Dr. Keith's book to all, especially to students, who intend to make use of this agent for the relief of disease.

A. F. C.

# PROGRESS OF MEDICAL SCIENCE.

## THERAPEUTICS.

UNDER THE CHARGE OF

FRANCIS H. WILLIAMS, M.D.,  
ASSISTANT PROFESSOR OF THERAPEUTICS IN HARVARD UNIVERSITY.

### RELATIVE VALUE OF THE NEWER ANALGESICS.

In the course of a lecture delivered in Cochin Hospital, Paris, PROFESSOR DUJARDIN-BEAUMETZ compared the new antithermic analgesics. The first rank is given to antipyrin, on account of its ready solubility, and the fact that it has little toxic power. He ridicules those who decry its use on the ground of its danger, asserting that there are few substances in the *materia medica* that may not be given in toxic doses, and that these same persons who object to the use of the newer drugs have no hesitation in using morphine and belladonna, which are, in reality, far more dangerous. The chief disadvantage of antipyrin is the scarlatiniform eruption which is often produced by the ingestion of large doses, especially in the case of young girls.

Close after antipyrin, and second only because of its insolubility, the lecturer places methylacetanilid, or exalgine, to which he devotes a careful description. It is more active than antipyrin, and does not produce an eruption. In ordinary cases four grains, twice or three times daily, is a suitable dose, although, in rebellious cases, the quantity has been increased up to twenty grains a day. Owing to its insolubility in water the exalgine must be given in an alcoholic solution. The following is suggested by the author:

R.—Exalgine . . . . .	2.50.
Essence of peppermint . . . . .	10.
Linden water . . . . .	120.
Syrup of orange flowers . . . . .	30.

One teaspoonful (four grains) morning and night.

The remedy seems to relieve pain arising from whatever cause. The speaker had observed relief in three cases of cardialgia with anginous acces-

sions, and Gaudiman had reported but three failures in thirty-two cases of neuralgia.

Phenacetin, which is placed third on the list, being sparingly soluble, is proportionately non-toxic. It is best administered in capsules of seven and a half grains, once or twice daily, and is especially serviceable in the neuralgias of the hysterical.

Acetanilid should be placed last, according to this authority, not because it has less power, since that is not true, but on account of the alarming cyanosis which sometimes follows its use. This discoloration, however, is stated to be not particularly harmful, the remedy being exhibited sometimes for months without producing more than a passing bluish discoloration of the skin and mucous membrane.—*Therapeutic Gazette*, December 10, 1889.

#### DETERMINATION OF THE ANTISEPTIC VALUE OF VARIOUS SUBSTANCES, ESPECIALLY SOME SALTS OF MERCURY.

In the course of the past year much has been published about the antiseptic value of several compounds, especially iodoform, carbolic acid, mercurial compounds, and creolin. The writers are far from being of one mind in regard to their proper application. Sometimes the experience of practitioners is in conflict with bacteriological tests, sometimes bacteriological tests are not in accord with each other. When the germicide value has been agreed upon there still remain to be discussed questions of poisonous action or harmful accompaniments.

DR. BEHRING, of Berlin, has recently published the results of his researches on the antiseptic value of iodoform, creolin, and some of the salts of mercury.

About the antiseptic value of the first of these, iodoform, there has been a wide difference of opinion, the surgeons taking one side, and the bacteriologists the other. The fact has been overlooked that iodoform, compared with corrosive sublimate and carbolic acid, is an inert substance, and must first be decomposed before it can exert any action on the growth of the bacteria. In regard to the decomposition of iodoform there has prevailed a radical misconception: that it slowly and continuously gives off iodine when added to decomposing liquids, or when it is in solution in fat, is not true. It is possible to keep iodoform in solutions at the temperature of the body indefinitely, if the action of light, the reducing action of substances similar to aldehyde, and other things, such as nascent hydrogen, are prevented. Iodoform also remains undecomposed in various liquids of the body so long as the reducing action of living cells or microorganisms and their products are excluded. One may observe, in wounds where no decomposing secretion is present, that iodoform remains for a long time unchanged, while if pus and ill-smelling secretions are there—in other words, if active chemical changes are going on—even large amounts of iodoform disappear rapidly. The iodoform is decomposed, and its products, hydriodic acid and iodine, render the pus odorless, diminish the secretion, and limit the growth and reproduction of bacteria. If we have to do with a microorganism which has but slight reducing power, as that of splenic fever, we should expect it to be but little affected by iodoform; on the other hand, it is easy to understand that a

bacillus which is capable of exerting an energetic reducing power, as is the case with the comma bacillus, would have its growth promptly checked.

Among the bacteria which exert an energetic reducing action are all of the anaërobious bacteria; their growth is quickly stopped by iodoform, and in proportion to their activity as reducing agents; the greater their power in this direction the more promptly are they killed. It may be said that the more stinking a culture is, the more the bacteria have this reducing power. The staphylococcus of pus is not especially influenced by iodoform, but in offensive pus which contains other bacteria, iodoform may exert a useful action.

The sphere of the antiseptic use of iodoform is an important one, and lies within boundaries where other antiseptics are less effective.

Carbolic acid, on the other hand, has the unique and valuable property of being a uniformly active antiseptic under almost all conditions; in the presence of albumen, in acid or alkaline solutions, against either aërobious or anaërobious bacteria. It is inactive only in fatty oils, in alcohol, and in resins, but in practice even these solutions are active, as the carbolic acid is absorbed or dissolved from such solutions when they are employed.

Corrosive sublimate has its value as a germicide much affected by various conditions, such as the temperature and the presence of albumen. Also, bacteria in the presence of albumen have the power to reduce corrosive sublimate to calomel, and even to metallic mercury, thereby destroying its antiseptic properties.

If we compare iodoform and corrosive sublimate, we see that the former, though an inert substance when put into a wound, is capable of becoming a very efficient antiseptic if it is decomposed; corrosive sublimate, on the contrary, possesses at the start strong antiseptic properties, which may be ruined by the influence of the secretions from the wound and the bacteria.

The germicidal value of corrosive sublimate may also be diminished by light in the presence of organic matter, even so small an amount as is found in undistilled water. The action of such influences upon corrosive sublimate may at one time be great, at another small, and without exact determination and an appreciation of the chemical changes which occur in the treatment of wounds, it is not possible to form a just estimate of its antiseptic value.

The discrepancies which may arise between the observations of various observers are well illustrated in what has been published about creolin: the proportion necessary for good antiseptic action has been estimated by some as 1 part in 5000 to 1 part in 15,000; by others, 1 in 175 to 1 in 225, or even 1 in 100. The stronger solutions were required by those whose tests were made with albuminoids, while the weaker ones were found sufficiently strong by those who used solutions free from albuminoids.

For carbolic acid, the variations with different culture media are not so great; the proportions given by various authors vary only from 1 in 600 to 1 in 900.

Among the conditions under which a germicide is tested, it is important to have the fluids with which the experiments are made of a composition similar to those of the body; as regards the choice of a bacterium, that of splenic fever is quite suitable, as its growth is rapid and characteristic.

The figures in the following table indicate the proportions of the salts of

mercury which were sufficient to kill the spores of splenic fever, in bullock's blood serum, at a temperature of 86° F. for two days:

Corrosive sublimate . . . . .	1 : 10,000
Corrosive sublimate and chloride of sodium . . . . .	1 : 15,000
Corrosive sublimate and chloride of ammonium . . . . .	1 : 12,000
1 corrosive sublimate } . . . . .	1 : 12,000
½ cyanide of potassium } . . . . .	1 : 15,000
1 corrosive sublimate } . . . . .	1 : 18,000
1 cyanide of potassium } . . . . .	1 : 8,000
1 corrosive sublimate } . . . . .	1 : 16,000
2 cyanide of potassium } . . . . .	1 : 10,000
1 corrosive sublimate } . . . . .	1 : 6,000
5 tartaric acid } . . . . .	1 : 10,000
Mercuric cyanide . . . . .	1 : 16,000
Mercuric formamide . . . . .	1 : 10,000
1 mercuric soziodol } . . . . .	1 : 6,000
5 chloride of sodium } . . . . .	1 : 10,000
1 mercuric soziodol } . . . . .	
3 iodide of potassium } . . . . .	

Among other substances tested in a similar manner were the following:

Malachite green . . . . .	over 1 : 40,000
Mercuric iodide } . . . . .	
Argentichloride } Dissolved in } . . . . .	1 : 30,000
Mercuric cyanide } potassiccyanide }	
Lunar caustic } . . . . .	
Hydrochlorate of quinine } . . . . .	
Soziodol-zinc } . . . . .	
Acid sulphate of quinine } . . . . .	1 : 500
Carbolic acid } . . . . .	
Iodine dissolved in potassic iodide } . . . . .	
Oxalic acid } . . . . .	
Creasote } In alcoholic } . . . . .	1 : 250
Thymol } solutions, }	
Urethan } . . . . .	
Paraldehyde } . . . . .	
Chloral hydrate } . . . . .	
Salicylate of sodium } . . . . .	1 : 150
Eucalyptol } . . . . .	
Potassic carbonate } . . . . .	
Potassic bicarbonate } . . . . .	
Creolin (Pearson's) } . . . . .	
Sodic soziodol } . . . . .	
Creolin (Artmann) } . . . . .	under 1 : 100
Ether } . . . . .	
Alcohol . . . . .	1 : 15



## THE EFFECT OF SALICYLIC ACID ON THE UTERUS.

DR. LINHART has recently had an opportunity of studying the action of the salicylate of sodium on the uterus. The patient was a young married woman, suffering with chronic rheumatic arthritis. Salicylic acid always relieved the rheumatic symptoms, but in a short time after its administration a new series of symptoms presented, viz., pain in the back and loins, constant whether sitting, lying, or standing. Then it was noticed that the menses, which ordinarily lasted from three to four days, now continued seven to eight days, were unusually copious, and more painful. It was also observed that when the administration of the drug was begun near the time for menstruation, the latter was sure to appear after a few doses had been taken.

While this drug was being administered, other remedies, such as chloral, morphia, chloroform, etc., were given to meet the symptoms just described, but with unsatisfactory results. For some time French observers have advocated the idea that salicylate of sodium has a paralyzing action upon the vaso-motor nervous system, thereby causing a dilatation of the arterioles. On this theory Dr. Linhart could explain all the symptoms in his case, and, by way of experiment, he gave minute doses of ergot with the happiest results.

The writer is, therefore, led to conclude that the drug is destined to play a more important rôle in the treatment of certain diseases of women than heretofore, and suggests its use in amenorrhœa and kindred complaints.—*Wiener med. Presse*, December 8, 1889.

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## EXPERIMENTAL RESEARCH INTO THE COMPARATIVE ACTION OF NATURAL AND ARTIFICIAL SALICYLIC ACID AND THEIR SALTS OF SODIUM.

In a paper read before the Section for Pharmacology and Therapeutics, at the annual meeting of the British Medical Association, DRs. CHARTERIS and MACLENNAN report a series of investigations made to ascertain the comparative action of the natural salicylic acid as obtained from salicine or the oil of wintergreen, and the artificial acid, which is obtained by the combination of the elements of carbolic acid and carbonic acid. Two rabbits were given, by syringe, the same amounts, one of the artificial, and the other of the natural, sodium salt. Eighteen grains in all were given, in divided doses, and at intervals of several days.

In the rabbit to which the artificial product was given there was constantly observed, after two or three injections, a paralysis of the hind-legs. Finally the fore-legs also became affected, and the last dose caused death. The same dose of the natural salt, given at the same time and after the same intervals, caused only the slightest and transitory effect.

In another experiment, ten grains of the natural acid produced no result whatever, while the same amount of the artificial product was sufficient to cause death, with paralysis of all the limbs, and, finally, convulsions. Salicine, in doses of thirty grains, produced no serious symptoms.

From these facts the authors conclude: 1. That salicine, in a dose of thirty grains, seems to have no injurious influence on the life of a rabbit of the weight used, but that it diminishes the temperature about one degree. 2.

That salicylic acid, obtained naturally by oxidation of salicine, or from the oil of wintergreen, in ten-grain doses, has also no deleterious effects. 3. That salicylate of sodium, obtained from the natural salicylic acid, in thirty-two grains, is not lethal, but that it causes prostration and lowers the temperature.

On the other hand, it is conclusively demonstrated that: 1. Artificial salicylic acid, in a ten-grain dose, causes, first, paralysis of flexors; secondly, death by violent convulsions. 2. Salicylate of sodium, artificial, in eighteen-grain doses, is lethal; in four-grain doses it causes paralysis of the hind-legs; in eight-grain doses, circulatory and rotatory movements, with paresis and dragging of the hind-legs; further, in twelve-grain doses it causes pronounced paralysis of the hind-legs and marked progressive prostration; and that eighteen grains cause not merely paralysis of the hind-legs, but a paralytic condition of the fore-limbs and entire loss of control of muscle movements, and death supervenes in a short time.

The deductions from these experiments indicate that artificial salicylic acid and its salt of sodium are dangerous and, in large doses, fatal to animals; while salicine, natural salicylic acid, and its salts of sodium, are not.

Mr. G. G. Henderson, of Glasgow, made a careful examination of the artificial product, and succeeded in isolating the impurity in the form of a buff-colored powder, which was found to be more soluble than salicylic acid. One grain of it was injected into a rabbit weighing six pounds, with no bad result. Two grains caused rapid breathing and great prostration. After two grains more, after a half-hour, the prostration became more intense, and a fine tremor of the extremities came on. At the end of thirty-six hours the rabbit died.

The action of this impurity seems to be of the nature of a slow but certain poison, and the lethal dose is relatively much less than that of the simple acid. The rabbits at first used weighed but fourteen ounces, so that the lethal dose seems to be one grain to a one-pound rabbit.

The obvious conclusions from these experiments are that artificial salicylic acid contains an impurity or impurities, and until this or these can be extracted by the aid of chemistry, the internal administration of it or its salt should be discountenanced. Large and repeated doses of the sodium salt are necessary in the treatment of acute rheumatism, and hence we may account for the restlessness, the confusion, and the delirium sometimes attendant on its use, which have been testified to by clinical experience. It is more than probable, too, that the retarded convalescence occurring in some cases of acute rheumatism after the salicylate treatment, is due to the great and protracted prostration which the impurity or impurities give rise to. It is to be remembered, in connection with these symptoms, that prescriptions of the salicylate of sodium are invariably made up, unless otherwise indicated, from the artificial and not the natural salt.—*Brit. Med. Journal*, November 30, 1889.

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#### ELIMINATION OF SALICYLIC ACID BY THE KIDNEYS.

The danger attending the use of many drugs, even when taken in small doses, in cases of renal affections, has led DR. CHOPIN to investigate the

conditions governing the elimination of salicylic acid by the kidneys, both in the healthy and diseased state (*Journal de Médecine et de Chirurgie Pratiques*, 1889).

It would appear, from the author's results, that in all cases where there is a renal lesion the economy retains the medicine considerably longer than in the normal state, and it seems that salicylic acid, which, when the kidneys are normal, increases the quantity of urine; in acute nephritis, on the other hand, diminishes it. So, when moderate-sized doses are given in cases of kidney affection, the well-known symptoms of intolerance of salicylic acid appear in the first or second day of its administration, for the reduction in the amount of urine retards elimination, and so leads to the accumulation of the drug.

These results have an especial importance in indicating the wisdom of prohibiting the use of salicylic acid as a preservative of foods, for even when given in the smallest amounts, if the kidneys are affected, toxic symptoms supervene. In France, it is stated, more than one hundred thousand pounds of salicylic acid were used in 1880 for the preservation of foods, and the facts given above certainly justify the conclusion of the French Academy in prohibiting the use of the article for the purpose of preserving foods.

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#### DITHIOSALICYLATE OF SODIUM.

Dithiosalicylate is recommended by DR. H. LINDERBORN as a substitute for the salicylate of sodium (*Revue générale de Clinique et de Thérapeutique*). This body is formed by the combination of two atoms of sulphur and two molecules of the salicylate of sodium. It is a grayish-white powder, very hygroscopic, and very soluble in water. In the urine it does not form the violet reaction with perchloride of iron. In twenty per cent. solution it destroys various bacilli and microbes in forty-five minutes; in doses of three grains, repeated twice in twenty-four hours, it has succeeded in arresting articular rheumatism, even where salicylate of sodium had failed, and has been used by the writer, with success, in gonorrhœal arthritis without producing gastric trouble, ringing in the ears, or any tendency to collapse.—*Therapeutic Gazette*, November 15, 1889.

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#### THE USE OF SALOL IN PRODUCING ANTISEPSIS OF THE URINARY PASSAGES.

At a meeting of the Société Médicale des Hôpitaux, held November 22, 1889, M. DREYFOUS discussed the question of rendering the urinary passages antiseptic by means of internal medication, instancing the good effects he had obtained from the use of salol in many cases of blenorrhœa. Salol, or salicylate of phenol, when it comes in contact with the pancreatic juice, is separated into carbolic acid and salicylic acid, both of which are eliminated by the kidneys, the first as phenyl-sulphate of soda, and the second without change. These facts have been established by Nencki, Lepine, and Sahli.

By administering salol, therefore, we may produce a stream of aseptic urine, which washes the mucous lining of the kidneys, bladder, and urethra, thus establishing the antiseptis of these surfaces much more thoroughly

than can be done by the use of injections from without. Sahli has shown that the urine of persons who are taking salol is antiseptic, and also that the salol is well borne, even in large doses.

This remedy would seem to fulfil all the conditions that Bouchard, in his studies of the therapeutics of infectious diseases, has put down as necessary for the antiseptis of this special series of organs. It has the advantage of being only slightly soluble, and so non-toxic; it is not a general antiseptic, an antithermic, or intestinal antiseptic, but seems to reserve its action for the urinary passages, and its adaptability for this special end is comparable with the action of naphthol in intestinal antiseptis.

M. Dreyfous has administered the salol, alone or in combination with balsams, in seven cases of blenorragia, the dose varying from five to eight grains. The discharge decreased rapidly in each instance, and in one case which had lasted for four days the cure was complete in three days. The good results seem to be attributable to the fact that the salol renders the urine aseptic, and probably antiseptic. Certain cases, in which the salol was administered alone, proved that the good result was due to it, and not to the balsams, although the speaker preferred to give it with copaiba or cubebs, in order to hasten the cure.

If this effect of the drug shall be well established, it will commend itself to the surgeon in those cases where it is desired to render the urine aseptic before an operation upon the genito-urinary tract.

In reply to M. Chantemesse, who asked to which of the products of the decomposition of salol the antiseptic action was attributable, M. Dreyfous said that the antiseptic power of phenyl-sulphate of soda, that being the form in which the phenic acid is eliminated, is not yet proven, while we know that the other product, the salicylic acid, is certainly antiseptic. The latter would cause serious disturbance of the digestive tract if administered in quantities as large as can be obtained after the ingestion of salol.—*L'Union Médicale*, November 28, 1889.

#### COCILLANA AS AN EXPECTORANT.

In the *New York Med. Journal* of December 28, 1889, DR. REYNOLD W. WILCOX gives a careful study of the effects of cocillana. The drug is from the bark of an undetermined species of guarea, discovered in Bolivia in 1886. The preparation employed was the concentrated tincture, the dose of which varies from f 3j to f 3ij, administered every two to eight hours.

Its action seems to consist of stimulation for some hours of the vessels and glands of the mucous surfaces, more especially of the respiratory tract, this being followed by a diminution of activity. Probably the elimination is by way of these surfaces.

After citing a number of cases of acute bronchitis in which relief was obtained, the author compares the effects of this drug with those of apomorphine, and concludes that the former acts more upon the glands and the latter more upon the bloodvessels; hence the secretion produced by the new drug is more mucoid. The watery secretion is not so quickly established but will last at least three times as long as after the use of apomorphine. The expectorant effect does not seem to be the first stage of nausea, since the

appetite is rather increased after the administration of full physiological doses.

In chronic pulmonary cases accompanied with viscid secretion, cocillana will render the sputum liquid somewhat more surely than ipecacuanha, and it has the advantage of not causing nausea.

The author concludes that it is safer in acute bronchitis than apomorphine, because it does not depress the heart, but that in chronic senile bronchitis it must yield to carbonate of ammonium, although the heart-beat and the pulse become stronger under its use. In many cases it can be substituted with advantage for apomorphine, carbonate of ammonium, strychnine, and other drugs generally classed as expectorants.

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#### DEATH FROM CHLORATE OF POTASH.

DR. WILLIAM ANDERSON, of Brooklyn, N. Y., reports a fatal case of poisoning with chlorate of potash. The patient was a married lady of about seventy years of age, who took nearly an ounce of the drug, thinking it was Rochelle salts. The mistake was discovered about an hour afterward, and emesis was produced by mustard. No symptoms appeared until about four hours after the drug had been swallowed, when the patient suddenly fainted while defecating. The lips became blue, the tongue purplish, and the face ashen, but she said, on recovering partially, that she had no pain. There was profuse vomiting of mucus, but no blood. The temperature rose to 100°; the pulse, which reached 100, was weak, but not irregular. She was given digitalis and whiskey, but died, comatose, at the end of fifteen hours. The urine passed freely after the draught was taken, but it was not examined.—*Medical Record*, December 7, 1889.

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#### THE CAUSE OF DEATH AFTER CHLOROFORM.

DR. LAUDER BRUNTON, who, as is well known, has been in India studying the causes of death from the use of chloroform, has sent a dispatch to the *Lancet* in which he says that the results are most instructive, the danger from chloroform being asphyxia or overdose, and not due to the heart directly. These results, it would seem, indicate a change in the views which were held by the investigator when he left England, viz., that the danger was from stoppage of the heart. Further details of the experiments will be looked for with the greatest interest.—*Lancet*, December 28, 1889.

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#### THE EFFECT OF PILOCARPINE ON THE COLOR OF THE HAIR.

DR. D. W. PRENTISS, in a paper read before the American Medical Association in June, 1889, makes a careful study of the evidence going to prove that the hair of man and the lower animals and the plumage of birds can undergo a change of color within a short space of time. To a case which he had previously reported in which the use of pilocarpine had rendered the hair black, he adds another very similar instance. The woman, seventy-two years of age, was given the fluid extract of jaborandi for the relief of a dry, harsh skin, resulting from contracted kidney. Twenty to thirty drops,

several times daily, were taken during a period of sixteen months. The patient's hair and eyebrows had been snow white for twenty years, but about a year after the pilocarpine treatment had been begun it was noticed by the nurse that the eyebrows were growing darker, and that the hair of the head was darker in patches. At the time of death these patches were quite black.

The author discusses at some length the question of whether this change in color takes place in existing hairs, or whether it is necessary that new pigmented hairs shall grow in place of the old ones, which have fallen out. He considers it as proven beyond a reasonable doubt that the change may take place in hairs already existing, and believes that pilocarpine at times has the power in some manner to bring about this change.—*Journal of the Amer. Med. Assoc.*, December 21, 1889.

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## MEDICINE.

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UNDER THE CHARGE OF

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### THE TREATMENT OF INFLUENZA.

ALISON (*Arch. Général*, August, 1889) considers influenza (grippe) an epidemic, infectious and probably contagious disease, characterized by irregular fever, inflammation and catarrh of the mucous membranes, nervous disturbances, and, finally, sweating and diarrhœa. He urges that the simple hygienic or symptomatic treatment be replaced by the administration of tannic acid in doses of twenty to thirty-five grains, in cachets, three times a day. In this way he treated twenty-three cases with recovery or relief. There occurs at once a diminution of the catarrh, the pain, and the nervous disturbances; sleep becomes quieter, and appetite returns. The perspirations and diarrhœa are influenced to a less degree. In all cases the remedy was well borne.

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### DIPHTHERIA.

HENOCH (*Münch. med. Wochenschr.*, October 22, 1889, 747) reports his experience in 192 cases of diphtheria, from which number he carefully excluded all doubtful cases and all instances of scarlatinal necrosis. Scarlatinal diphtheria he considers an affection entirely distinct from true diphtheria. There are certainly instances in which scarlatina and diphtheria are combined, but either the former has appeared in cases of diphtheria well under way, or in the stage of decline; or the latter affection has developed in the

later stages of scarlatina; certainly after the third or fourth day. Only in such cases of scarlatina does diphtheritic paralysis appear.

To distinguish diphtheria from angina lacunaris is often not possible until after continued observation. In some instances, indeed, it is impossible, namely, in those in which there occurs a deposition of fibrin in addition to the collection of pus in the depressions of the tonsils. In these cases the bacteriological examination would give certainty, if only we knew more accurately the nature of the bacillus and of the pathological anatomy of the affection. Diphtheria can, indeed, only be recognized positively when all or several of the cardinal symptoms are united; such as bilateral distribution of the membrane in the throat; involvement of the soft palate, uvula, etc.; albuminuria; involvement of the nasal cavities; contagiousness. Swelling of the glands and fever may appear in simple angina as well.

In 110 of the cases the membrane was confined to the pharynx; in 82 it spread to the larynx or still further down. In 12 of these latter tracheotomy was not performed on account of various contra-indications, while of the remaining 70 on whom the operation was done, 9 recovered; a percentage of 13. Many of the cases died of pneumonia, bronchitis, collapse, or heart failure, after the operation had apparently had a good result. Henoch attributes this low percentage of recoveries not to a severe form of the disease, but to the fact that more than half of the children were already suffering from different constitutional diseases, others were very poorly nourished, and many were quite young; while, in addition to these factors, the hygiene of the hospital was extremely bad. One great source of error in statistics is that writers include in them the cases of true croup, and thus greatly increase the apparent number of recoveries. Henoch has seen 36 cases of croup, of which 24 (66 per cent.) recovered after tracheotomy.

Of the 110 cases of pharyngeal diphtheria, 32 died—a favorable percentage.

The degree of fever proves nothing as to the severity of diphtheria. The swelling of the glands usually undergoes resolution; it is seldom that suppuration takes place as in scarlatina.

The diphtheritic membrane is of prognostic significance. Membrane on the hard palate is an exceedingly unfavorable sign, while involvement of the cheeks, tongue, lips, genitals, and anus also makes the prognosis bad. On the other hand, the spread of the membrane to the nose is not especially unfavorable even in bad cases.

Diphtheritic nephritis appears from the third to the fifth day, and is characterized by tube-casts, epithelium, and a few red blood-cells; in contradistinction to scarlatina, in which the number of blood-cells is large. The appearance of albumin not until a later period of the disease is very unusual, and cannot be affirmed unless the presence of scarlatina or the persistence of an early albuminuria can be absolutely excluded. Henoch has seen this late nephritis but twice.

Edema is much rarer than in scarlatina; uræmia is very exceptional; affection of the joints has come to his observation but once. A croupy cough and stridor form no indications whatever for tracheotomy. The author has tried various methods of treatment, and found them all useless in severe cases.

### DIFFICULTIES IN THE DIAGNOSIS OF MEASLES WITH A DELAYED ERUPTION.

DUBRANDY (*Rev. Gén. de Clin. et de Thérap.*, 1889, No. 36, 583) speaks of the rarity of a delayed appearance of the eruption in measles, and says that in an epidemic in which he treated seventy-eight cases, he saw this delay in but three instances. In two of these the diagnosis could not during six days be made between measles and broncho-pneumonia, and in the third the disease lasted eight days before the eruption appeared, and showed that the case was not one of typhoid fever. In this case, the details of which he gives, there was neither cough nor ocular or nasal catarrh until the appearance of the rash.

### HEREDITARY CHOREA.

SUCKLING (quoted in *Practitioner*, November, 1889, from *Birmingham Medical Review*, September, 1889) reports a case of hereditary chorea in a previously healthy man, thirty-nine years old. For three to four years he had continually suffered from jerking of the hands and feet, stumbling, and "sniffing" due to a spasmodic action of the diaphragm. The shoulders were much affected, and the tongue and face slightly so. The speech was not involved and the knee-jerk was normal. The mother of the patient died at fifty-six years, having been choreic for sixteen years, and finally, quite helpless and unable to feed herself. Suckling also saw one of the patient's sisters, aged thirty-eight years, who had had the disease for five years. The patient's youngest daughter, of about twelve years, was also affected by the disease.

The author describes the affection as distinctly hereditary, occurring chiefly in adults, and never skipping a generation. The movements can at first be directed by the will, but finally become quite involuntary, until the patient becomes bedridden and demented. The affection may remit or exacerbate, but never disappears.

### THE RELATION OF TABES AND OF PROGRESSIVE PARALYSIS TO SYPHILIS.

STRÜMPPELL (*Wien. med. Presse*, 1889, No. 43, 1700) says that the existence of a connection between progressive paralysis and syphilis is admitted by the majority of neurologists, and that it is of great importance to determine exactly the nature of this relation. It has long been known that after acute infectious diseases certain secondary nervous affections may appear. These are characterized by the development, a certain time after the original disease is past, of degenerative conditions, usually in the peripheral nerves, whose clinical results make themselves known now as paralysis, now as ataxia, now in other ways. In all cases, however, the cause of the clinical symptoms is the same; namely, a simple degenerative atrophy of nerve fibres. The specific organized cause of the original disease never produces but the one result; as, for example, specific croupous inflammation in various parts of the body in diphtheria, and the specific lymphoid new formations in the organs in typhoid fever. This fact proves that the cause of the nerve degenerations is to be sought in the action of chemical products of disease, the results of the influ-



ence of the primary infection or its immediate effects. These substances need by no means be injurious metabolic products from the bacteria of the disease, but may as well be substances resulting from the degeneration and absorption of such effects of the disease as exudates and new-formed cells. This supposition would explain why it is that the nervous diseases in question almost never appear until after the original disease has run its course.

These same statements would seem to apply to the chronic infectious diseases. In tuberculosis there is often a widespread peripheral degeneration of the nerves, but never with the presence of tubercle bacilli or characteristic cellular new formations. Though we are far from understanding thoroughly the true character of syphilis, it would seem that here, also, we must distinguish between the immediate action of the bacilli, seen in the production of the specific gumma, and the secondary degenerative changes depending on the action of a chemical poison, and represented by the post-syphilitic nervous diseases, whose commonest, though by no means only forms, are tabes and progressive paralysis.

This explanation preserves the fact of the etiological relation of syphilis to these two diseases, without obliging us to wonder why antisymphilitic drugs are of no effect in their treatment; and we can understand, too, the existence of tabes as a primary systemic nervous affection, without having recourse to the unfruitful and untenable assumption of a primary alteration of the vessels to explain its origin.

Finally, the intimate connection of tabes with progressive paralysis is made more clear by this theory. Both are but different localizations of the same pathological process; and their frequent occurrence with and after each other is not the combination of two different diseases, but the complete development of the action of one and the same pernicious process.

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#### THE CONDITION OF THE WEIGHT OF THE BODY IN PSYCHOSES.

FÜRSTNER (*Wien. med. Presse*, 1889, No. 43, 1702) distinguishes three groups of cases of the psychoses, as regards the variations of the body weight:

1. Those who have had vigorous normal brains previous to the development of the psychoses.
2. Those strongly predisposed by heredity, or suffering a relapse.
3. Individuals suffering from "organic" psychoses.

In a series of cases in the first group there occurs a regular, abrupt fall in the weight-curve at the beginning of the psychosis, followed at a certain time by an equally regular rise, which often continues even after recovery. The absence of this condition on the disappearance of the psychic disturbance raises a doubt as to the reliability and permanency of the recovery. In another series of cases the fall is less regular and abrupt, and the succeeding rise is preceded by variations in the curve. These two curves are chiefly observed in primary, acute psychoses, and constitute a favorable prognostic sign.

In cases of the second group there is a short fall, then a continuing variation, and finally, in favorable cases, a rise; in chronic forms the curve remains at a middle height.

In progressive paralysis and other organic psychoses there is often, after a

short fall, a gradual, continual rise ; then, from a certain time, a regular fall, in spite of good sleep, abundant nourishment, and but little exertion of the muscles. This loss of weight, which is often very rapid, can only be explained by the existence of cerebral changes.

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#### THE INFLUENCE OF DILUTION ON THE ACTIVITY OF THE TUBERCULOUS POISON.

BOLLINGER (*Münch. med. Wochenschrift*, 1889, No. 43, 731) communicates the results of the important experiments conducted in his laboratory by Gebhardt during the past two years. As it has been shown by Hirschberger that 55 per cent. of all tubercular cows produce an infectious milk, the first step was to determine the infectiousness of the ordinary market milk. Samples obtained from 10 different places of sale, and inoculated on as many guinea-pigs, gave entirely negative results. Inoculations were next made with milk taken directly from the healthy udders of tubercular cows after their slaughter, and diluted to different degrees. It was thus found in three cases that dilutions of 1 : 40, 1 : 50, and 1 : 100, respectively, were required to destroy the virulence. Both these tests prove that the virulent milk of tubercular cows loses its infectiousness through a certain degree of dilution. The mixing of the diseased milk with that of many healthy cows thus lessens the danger, as also does the dilution usually employed in preparing milk for infants. Milk coming from large establishments is always, therefore, to be preferred to that from a single cow.

A second series of experiments was made on the influence of dilution on the virulence of the sputum. The results showed that, as compared with milk, the sputum was excessively infectious, and that not even a dilution of 1 : 100,000 served to diminish its poisonousness, whether communicated subcutaneously, by inhalation, or by intra-peritoneal inoculation. On the other hand, 32 minims of the tubercular sputum in a dilution of 1 : 8 failed of any positive result when given with the food. As different specimens of sputum differ naturally in the number of bacilli contained, Gebhardt next made similar experiments with pure cultures of supposedly the same strength. The results showed that 16 minims of a dilution of 1 : 400,000 fully preserved its virulence, as did 8 minims of the same when inhaled. The general conclusions reached were, that the greater the amount of the tubercular poison taken into the system, the more rapidly is it spread throughout the body.

An attempt made to estimate the number of bacilli in the sputum, showed that 16 minims contained about 810,000 to 960,000. According to this estimate, about 820 bacilli are required to set up a fatal tuberculosis in a guinea-pig.

The subcutaneous connective tissue, the peritoneum, and the lungs are especially, and about equally, predisposed to the reception and increase of bacilli, while the digestive tract is decidedly more resistant. The order of the organs attacked by artificial infection is about as follows: lymphatic glands, spleen, lungs, liver, and, lastly, kidneys and genitals. The place where the disease first develops is, however, not always dependent on the port of entrance of the bacilli; *e. g.*, a pulmonary tuberculosis is not always to be attributed to an infection by inhalation.

The experiments also tend to prove the existence of an individual predis-

position; since some guinea-pigs were unaffected by a stronger dilution than that which poisoned others.

It is certainly proved that a fluid may be virulent, although the few tubercle bacilli present may escape microscopic detection. Consequently the failure to discover bacilli in the sputum is not a proof of their absence, and inoculation would be a much more delicate test.

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#### THE RELATION OF ARTERIAL HYPOPLASIA TO CARDIAC DISEASE.

HANDFORD (*Practitioner*, November, 1889) reports the case of a man, who had suffered for years from shortness of breath, and, finally, from ascites and general œdema. When examined there were, beside the œdema, severe orthopnoea and cough, with blood-stained sputum. There were no heart murmurs and the arterial tension was low. After death, which soon occurred, the left and right ventricles and the right auricle were found much dilated, and there was an unusual narrowness of the main arteries of the body; the aorta admitting the little finger with difficulty. The walls of the vessels, also, were thin and delicate. The author then refers to the observations of Virchow, Fraentzel, and others on congenital narrowness of the arterial system, and to the connection which this is supposed to have with chlorosis. The case reported is an illustration of cardiac hypertrophy and dilatation due to this congenital narrowness, since there was no indication of Bright's disease either before or after death. He thinks there can be no question that the result of arterial hypoplasia is to produce an eccentric hypertrophy of the heart, the intensity of this depending upon the degree of the arterial stenosis and the exertion to be undergone. In some cases, and especially in chlorosis, in which he believes it to be very common, the hypoplasia is temporary, and would be more suitably called *tardy development of the arterial system*. Between the ages of twelve and fifteen years growth proceeds with much greater rapidity in the female than in the male. It may well be that in some cases the arterial development may lag behind the requirements of the body, and that, if much physical exertion be required, cardiac dilatation may result. In his experience this dilatation is almost universal in chlorosis, and explains the frequent relapses, the failure of iron to produce more than temporary benefit, unless it be continued for so long a time that the heart's condition may undergo evolution, and the occasional total failure of iron.

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#### THE DIAGNOSTIC VALUE OF SALOL IN MOTOR INSUFFICIENCY OF THE STOMACH.

J. DECKER (*Berlin. klin. Wochenschr.*, 1889, 975) reviews the investigations of Ewald and Sievers on the employment of salol as a means of detecting motor insufficiency of the stomach, and also those of Brunner and of Huber, both of which tended to prove that the test was of no great value, and that not only could the delay in the appearance of the salicylic acid reaction in the urine occur in other pathological conditions of the stomach, but that even in the normal organ could this delay be observed. Huber, indeed, took the ground that it was not the late appearance, but the long persistence of the salicylic acid reaction which characterizes an actual motor insufficiency

of the stomach; and that, whereas in a healthy organ the urine answered to the test not longer than twenty-six hours after ingestion of the salol, in cases of motor insufficiency the reaction could be detected for three, six, or even more hours longer than this.

Decker has followed this same line of study, and found, as a result of seventy-eight trials on twenty-two individuals, that in healthy stomachs the time required until the first appearance of the salicylic acid reaction in the urine varied from forty-five to ninety minutes, while in gastrectasia it varied from forty-five to seventy-five minutes. As regards the persistence of the reaction he found that in the healthy stomach this lasted from twenty-two to twenty-seven hours, while in gastrectasia the duration was from twenty-seven to thirty-five hours. As, however, it is not certain but that in many cases this may be due to a retarded absorption of the salicylic acid by the intestine, he concludes that neither the late appearance nor the long persistence of the reaction in the urine is of any real value in determining the presence of motor insufficiency of the stomach.

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#### ON THE PRESENCE OF SUGAR IN THE URINE.

W. M. ORD (*British Medical Journal*, November 2, 1889, 965), in discussing this subject, says that the conditions determining the presence of sugar in the urine in pathological quantities, are: 1, excessive afflux of arterial blood to the liver, and probably to other glycogenic organs; 2, defective assimilation of glucose; 3, defective formation of glycogen; 4, instability of glycogen—namely, the formation of glycogen which is too easily transformed; 5, excessive ingestion of glucose or of glucose-yielding substances.

As causes, under the first head may be mentioned: 1, vaso-motor paralysis from disease of the medullary centre or the nerves connecting it with the arteries of the liver; 2, dilatation of the hepatic artery not due to such disease, but to irritation in the liver or to reflex action from other organs—as the stomach—or to general disorder of the circulation, either functional, as a result of nerve strain or excitement, or probably also dyscrasic, as in gout; 3, possibly also compensatory hyperæmia due to undue contraction of the arteries in other parts of the body.

The author next calls attention to the influence of heredity in producing glycosuria, and relates several instances of it. It is, he thinks, certain that the disease is in some instances transmitted from parent to child. This transmission may be of the disease itself, or of the causes and conditions which predispose to it—such as gout, nervous disorders, and imperfection of the tissues. The frequent occurrence of glycosuria in persons very stout, either from inheritance, lack of exercise, or indulgence in alcohol, would indicate that both the glycosuria and the excessive fatness were marks of imperfect forms of nutrition. In addition to these causes, we cannot overlook the influence of persistent alcoholic irritation of the liver in many cases included in the group just referred to.

As examples of another nearly related group of cases, the author mentions instances of the association of granular contracted kidney with glycosuria. He has also found sugar in the urine in two cases of Raynaud's disease. Glycosuria is often present, too, in tertiary syphilis; not due to any implication

of the medulla, but possibly to the irritation of the liver by the specific disease possibly to the profound alterations of the general nutrition brought about by it. The author has observed several cases in which glycosuria preceded, or was preceded by, angina pectoris, and subsequently coëxisted with it. It may be that disordered innervation is the cause of both the excretion of sugar and the angina, but the author is more inclined to consider the glycosuria due to arterial relaxation of the vessels in the liver compensatory to the excessive tension of the peripheral arteries of the limbs, neck, and head. Finally, he calls attention to an observation which he has made in a number of cases: that the artificial stoppage of the secretion of milk during lactation apparently produces a backward flow of lactose into the vessels in a quantity so large that temporary glycosuria results.

#### THE VALUE OF THE PHENYLHYDRACIN TEST FOR SUGAR.

JOSEF GEYER (*Wien. med. Presse*, 1889, No. 43, 1686) says that the use of phenylhydracin as a test for sugar was first proposed by Fischer, and has been warmly recommended by von Jaksch, who considers it very reliable for even the smallest quantities of sugar. Rosenfeld, too, has recently examined the reaction and estimates it as the most delicate and reliable. This would make the substance most valuable in the recognition of sugar, since existing methods reveal small quantities of it with difficulty. It is, therefore, very important to determine absolutely whether there is any allied substance which could produce a combination with phenylhydracin resembling phenylglycosazon. Thierfelder has already shown that hydrochlorate of phenylhydracin and the potassium salt of glycuronic acid will produce a compound when treated according to Fischer's method, which resembles and has the same characteristics as phenylglycosazon, and can easily be confounded with it. Now glycuronic acid occurs in the urine, and it is probable, as Flückiger has shown, that some one of its combinations helps to make up the reducing substance found in normal urine.

In order to elucidate the matter, Geyer has studied carefully the relations of glycuronic acid to phenylhydracin, in order to discover whether they actually formed a compound resembling phenylglucosazon. He prepared glycuronic acid by a method which he describes in detail, and found that it deviated the plane of polarized light to the right—though its compounds deviated it to the left—and reduced copper on heating in alkaline solution; both of which effects are accomplished by sugar also. The reduction of the copper by the acid, however, differed from that by the sugar in that it occurred only after prolonged boiling, and often not until cooling had taken place. Glycuronic acid or its soda salt, treated with phenylhydracin after the manner of Jaksch, gave yellow crystals so resembling in appearance and solubility those of phenylglucosazon that no difference could be detected. To apply these facts to the examination of urine, the author examined a series of specimens obtained from cases in which the phenylhydracin test had given a positive result, yet in which he thought sugar was absent. In order to determine positively whether sugar was present, he found that the examination by fermentation and by the polariscope were the only reliable methods. As these tests, however, are only delicate to 0.1 per cent. of sugar,

it was first necessary to isolate and concentrate it, which he accomplished by the Abéles-Ludwig lead method. Fourteen cases were thoroughly examined, and though all of them contained a substance resembling phenylglucosazon, and gave a positive reaction with Trommer's test, only four responded to the fermentation test and with the polariscope deviated light to the right. He concludes, therefore, that phenylhydracin is not a reliable test for sugar and can give positive results with normal urine, and that fermentation and polarized light are the only accurate means at our disposal.

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#### TWENTY-THREE CASES OF TYROTOXICON POISONING.

D. M. CAMMANN (*New York Medical Journal*, November 23, 1889, 573) reports the cases of twenty-three children in a large institution, who within five days were taken sick with headache, nausea, vomiting, diarrhœa, and fever; these symptoms being more or less severe and lasting two or three days. All of the patients recovered.

The system of drainage and water-supply of the institution was of the most perfect description. The dietary was of the simplest kind, and was nearly the same as had been used for the last twenty-five years. During that period the institution had been remarkably free from gastro-intestinal diseases. The interval between the beginning of the attack and the time at which food had been taken varied greatly in different cases. After a careful investigation no other cause for the trouble except the milk could be found; and although the Board of Health, to whom specimens of it were referred, found no tyrotoxin in it at this time, they had previously had trouble with the same milkman, and thirty-six cases of poisoning had been reported in persons receiving milk from his farm.

The author considers that his cases may fairly be considered instances of tyrotoxin poisoning, and closes his paper with some general discussion of the subject.

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### SURGERY.

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UNDER THE CHARGE OF

J. WILLIAM WHITE, M.D.,

PROFESSOR OF CLINICAL SURGERY IN THE UNIVERSITY OF PENNSYLVANIA; SURGEON TO THE UNIVERSITY, PHILADELPHIA, AND GERMAN HOSPITALS.

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#### THE SURGERY OF THE LIVER.

MR. LAWSON TAIT reviews (*Edinburgh Medical Journal*, October and November, 1889) his experience in hepatic surgery, giving his cases in tabulated form, and in some instances with much detail. He has performed the operation of cholecystotomy fifty-five times, and fifty-two of the patients recovered. One old woman died of suffocative catarrh some weeks after the wound was healed, and two others died of the cancer of the liver, which was,

in all probability, the cause of the distended gall-bladder in one of them, for no gall-stones were found which could be removed. In the second the death of the patient, four months after the operation, revealed extensive cancer with suppuration of the liver. He obtained very great relief from the opening of a suppurating gall-bladder, and the removal of a large quantity of gall-stones. As a matter of fact, in not a single instance did the patient die from the operation. The remainder of these cases are in perfect health, and as well as they ever have been, with one exception.

As to operations upon the gall-bladder, Mr. Tait calls attention to the following circumstances: The gall-bladder is an organ subject to periodic filling and emptying, the latter process being accomplished by contraction of the muscular walls of the organ, and this contraction is far more powerful than is generally believed. The gall-bladder also secretes a quantity of clear albuminous fluid from its mucous surface, and this fluid contains some kind of fermentative principle. It is this fluid which distends the gall-bladder in cases of impacted calculus—may distend it, in fact, to an enormous size. If, however, the duct happen to be occupied by a calculus at the time of operation, the wound at the base of the gall-bladder would not remain closed, but would speedily be torn open; and it is a matter of extreme difficulty—in fact, it is a matter of absolute impossibility—to be perfectly certain during the operation of cholecystotomy that all the stones are removed from the duct. The canal may have been distended by the passage of a calculus urged forward by the pressure of the secretion of mucus from the walls of the gall-bladder. So long as the stone is in the cystic duct, the contents of the distended gall-bladder consist entirely of this clear mucus. After the stone has passed the mouth of the liver duct the bile flows into the gall-bladder, its passage into the duodenum is prevented, it is reabsorbed into the system, and jaundice is produced. It is the only condition in which jaundice is possible from the passage of a gall-stone, but, as the common duct is wide and easily dilated, these attacks of jaundice are very evanescent, or are rarely seen. So short a time, in fact, is required by the passage of a gall-stone from the common duct, that in the great majority of instances it is perfectly certain jaundice never appears; but suppose that the operation was performed whilst the stone was in the duct, the bile would at once tear the incision open and pass wholly into the peritoneal cavity.

The cystic duct in its normal state is of much smaller diameter than the common duct, and more difficult to distend, and the agonizing pain of a passing gall-stone seems to be limited, in a great measure, to this part of its journey. Langenbuch's proposal to remove the gall-bladder may be regarded as intrinsically absurd, for there can be no reason for removing any organ merely because it has some calculi in it.

Continuing, Mr. Tait digresses to make the following interesting remarks:

"I have had more than one occasion to draw attention to the astonishing disappearance of tumors, often of large size, after a mere exploratory incision. The absolute silence with which these statements have been received is very remarkable, and is capable of explanation, either by the fact that my papers have not been much read, or that the statements I have made on this subject have been received with a silent incredulity. They are true enough, though, for all that; and, by-the-by, the experience of others will substantiate them.

The cases in which I have seen tumors disappear in this way have mainly been cases of diseases of the liver, spleen, and head of the pancreas. I have seen others, where the exact site of origin of the growth could not be accurately ascertained, disappear equally; and I have also seen at least one case of uterine myoma go away altogether after a simple exploratory incision.

"The cases are far too numerous, and the results indicate sequence far too clearly, for us to dismiss the phenomena as a mere coincidence; nor can we accept the explanation of subsequent medical treatment as having brought about this much-desired ending. I am satisfied that the mere opening of the peritoneal cavity has a direct influence in setting up the process of absorption of the tumor, and my conviction in this direction has increased my confidence in the principle of exploration. That some emphatic physiological change is at once set up by opening the peritoneal cavity is clearly indicated by the uniform onset of a most distressing thirst, which lasts for days, and is not seen so markedly after any other operation known to me. Let the incision in the abdominal wall be made down to the peritoneum, but let the serous cavity remain unopened, and this thirst is not marked. But let the peritoneum be opened but a finger's breadth, and the result is marked. That a therapeutic change is effected in the peritoneum itself by the mere opening of the cavity is now universally recognized in the treatment of what we call tubercular peritonitis by abdominal section. I have now had a large experience on this point, and can say positively, that we can cure permanently and speedily cases that have gone even as far as suppuration, by opening and cleansing. But in the bad cases in all probability the cleansing is never complete, no matter how much time and care are spent on it. And, in the non-purulent cases, I very often do no cleansing at all, but merely empty out the serum and put in a drainage-pipe. Yet the great majority of these cases are cured by these simple means. . . . Four times in my life I have opened the abdomen for the purpose of removing enlarged spleens, and in every one of the instances I have been deterred from proceeding with the operation by reason of the hopelessness of the outlook for the patient. Strange to say, in three of the four patients the tumor has disappeared, and they are now to my knowledge—or were, at least, quite a short time since—in perfect health; the fourth succumbed to the exploratory incision."

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#### RENAL SURGERY.

In opening the discussion on this subject at the last meeting of the British Medical Association, MR. HENRY MORRIS (*The British Medical Journal*, November 16, 1889) discussed at length the following points: 1. The various ways in which renal calculi are imbedded in the kidney require special precautions whilst operating. 2. Tubercle of the kidney, as well as suppurating foci due to other causes, may give rise to the same tactile impressions as small calculi. 3. Tubercular disease of the prostate is a source of fallacy in diagnosing renal calculi. 4. Nephrectomy is of very doubtful value in advanced tubercular renal disease. 5. Lumbar nephrectomy is the proper treatment for advanced hydronephrosis, and for large collections of fluid behind the peritoneum, the result of lacerated kidney. In these cases nephrectomy, without previous incision and drainage, should be more frequently resorted



to than has been the practice hitherto. 6. Nephrorrhaphy for movable kidney is of great service. 7. The changes which the perinephritic tissues undergo under long-continued irritation sometimes render the search for the kidney very tedious and difficult, and, may be, even ineffectual.

In view of the fact that the statistics of secondary nephrectomies—*i. e.*, nephrectomies following nephrotomy and drainage—have been so favorable, the following remarks of Mr. Morris are of special interest :

If the kidney has been the subject of a former operation, if it has atrophied from any cause, or if it has long been the seat of a calculus, the perinephritic tissue is prone to become so altered in structure, so inseparably adherent to the kidney, that it may be very difficult, and even impossible, to make out the kidney at all. I have met with the same difficulty in once attempting nephrectomy two years after having incised and drained a traumatic urinary cyst. In this case the kidney was so encased by the altered perinephritic tissue that the organ could not be made out at all, and the operation had to be abandoned.

MR. BENNETT MAY differentiates varieties of cases depending on the way the stone is imbedded in the kidney, and finds that the distinction extends to differences in the nature and kind of stone, the symptoms and clinical history of the case, and the prognosis after operation. Fully half his cases have had the stone fixed in the parenchyma of the kidney. These stones were mostly of slow growth, of oxalate of lime, circular or pyramidal in shape, not branched, and occurred in young males. The kidney itself remained apparently healthy, even in a late stage of the disease. The prominent symptoms in these cases was the pain ; the diagnostic test on which he places most reliance is the pain on deep local pressure over a small area below the last rib. There may be small microscopic traces of blood, or blood in considerable amount after exercise ; but pus is commonly absent, or present only in small amount. These stones are difficult to find, but give the most perfect results if removed.

MR. LAWSON TAIT reports 74 operations, including 22 nephrectomies. After detailing these, and denouncing "the so-called nephrorrhaphy" as useless and nonsensical, he continues :

Much has been written on the best method of reaching the kidney, either for merely opening it or for its removal, and variously named "lines" of incision have been argued for by those who have had least opportunity of making use of them. The real fact is that the kidney is best reached by the most likely looking road, and, in this respect, different patients exhibit great variety of condition. Whether the peritoneum be opened or not makes not a scrap of difference to the mortality, and makes very little difference to the technique of the operation. If the tumor is of a suspicious nature, and nephrectomy be determined upon, the capsule should be removed, though the disease will recur in 50 per cent. of the cases of solid tumor whether this be done or not. If the kidney is merely the seat of inflammatory destruction, the capsule may be left. Uncertainty of diagnosis in the kidney seems to prevail to about the same extent (10 per cent.) as elsewhere in the abdomen. He has made exploratory incisions, hoping to find ovarian tumors, and has found huge soft cancers of the kidney. Once he diagnosed a hydatid tumor of the liver, and found a huge soft sarcoma of the right kidney.

*Very excellent*  
 THE SURGICAL TREATMENT OF TYPHLITIS.

In a most admirable paper on this subject, MR. FREDERICK TREVES (~~The~~  
*British Medical Journal*, November 9, 1889) advanced the following propositions: 1. There is no evidence to show that primary inflammation of the walls of the cæcum, independent of catarrh or ulceration of the mucous membrane, exists. 2. Inasmuch as both the cæcum and the appendix are entirely covered by serous membrane, a perforation in either of these organs cannot lead to suppuration of the connective tissue of the iliac fossa. Primary inflammation of this connective tissue may safely be said to be unknown. 3. Catarrh of the cæcum occurs in connection with a more general colitis, but the symptoms produced are those of colitis, and not of typhlitis. Catarrh of the cæcum, even when of an acute kind, does not appear to produce the symptoms of typhlitis. 4. Ulceration of the cæcum is common. The most usual form of ulcer is that known as the stercoral, and is due to the impaction of feces in the part. Other forms of ulceration are associated with tuberculosis, with dysentery and typhoid fever, with the impaction of foreign bodies, and possibly with syphilis. (Cancer of the bowel is not considered.) An ulcer of the cæcum, so long as it remains limited to the mucous membrane, may cause no symptoms, and will in any case not produce the symptoms of typhlitis. When such an ulcer has spread to the outer walls of the caput coli a peritonitis ensues, and the typical phenomena of typhlitis of some grade are usually produced. Any ulcer of the cæcum may lead to perforation. In connection with the stercoral ulcer the perforation appears late, and follows upon the symptoms of prolonged fecal obstruction. A large number of cases of fatal fecal accumulation terminate by perforation or rupture of the cæcum, but in such instances the preceding symptoms have not been those of typhlitis. 5. Perforation of the cæcum as (what may be termed) a primary condition is very rare. 6. Abscesses resulting from mischief in the cæcum or appendix are primarily intra-peritoneal, and are encysted forms of suppurative peritonitis—inasmuch as the cæcum and vermiform process are normally entirely surrounded by serous membrane, and inflammation extending from them must first implicate the peritoneum. 7. The milder varieties of typhlitis are usually due to a peritonitis over the cæcum which has been set up by the spreading in depth of a stercoral ulcer. The severer forms, and notably those which induce suppuration, usually depend upon troubles in the appendix such as may be due to a foreign body, a fecal concretion, the twisting or strangulation of the process, and the like. 8. With regard to the specific troubles in the appendix which cause typhlitis, the cases collected by Fitz, Bull, and others, show that a fecal concretion may be expected to exist in nearly one-half of the cases, and a foreign body in nearly one-eighth.

Mr. Treves further continues: For the purpose of discussing the treatment of the disease, typhlitis may be divided into three classes:

1. The mild form of the trouble. This, as hospital records show, is the commoner variety of typhlitis, is a form which usually ends in resolution, and is amenable to simple medical measures. It would appear to be usually that variety which depends upon fecal accumulation in the cæcum, or, at least, upon the lodgement of some irritating matter in the bowel. Stercoral

ulcers result, lead in due course to some peritonitis in the serous membrane about the caput coli, and the phenomena of typhlitis are present. The patients are usually the subjects of constipation and have passed scybala; or they may be suffering from the diarrhœa induced by the presence of scybala (colitis). The pain appears suddenly, but is, on the whole, less severe than in the graver form.

There is seldom any rigor, the fever is not so high, the vomiting not so marked, and the pain is less apt to radiate to distant parts, for example, to the thighs or testis. The tenderness is perhaps less pronounced; the tumor appears earlier—possibly from the first—it is comparatively large, is apt to be doughy, and to feel less fixed; it cannot so readily be made out through the rectum.

Bladder troubles are usually absent. The inflammatory symptoms gradually subside, and the attack passes off—so far as its acute symptoms are concerned—in from three to seven days.

2. The severer form of typhlitis leads to suppuration, and nearly always depends upon some trouble commencing in the appendix. The sex and the age of those who are most usually the subjects of this malady have been alluded to. The symptoms, generally speaking, are more severe and progress more rapidly. There is often an initial chill or rigor. The condition cannot usually be associated with any preceding constipation or digestive disturbance.

As a matter of fact, the state of constipation does not favor the lodgement of foreign bodies in diverticula of the bowel. There is in not a few of the cases a history of cold, or possibly of injury.

The pain is severe, the vomiting marked, the tenderness and other signs of peritonitis pronounced. The fever is usually high.

The tumor is slower to appear; can often be made out through the rectum, and, when felt, is demonstrated to be fixed. The pain is apt to radiate, to spread to the testis, thigh, or perineum, and to be associated with tenesmus and disturbances of micturition.

Pain upon moving the right thigh is often marked. The local swelling or the area of dulness takes on the phenomena attending suppuration, and, at a varying period from the commencement of the trouble, evidences of pus are distinctly present. The symptoms just detailed are subject, of necessity, to great variation.

3. Under the last variety are included the cases of relapsing typhlitis. This usually depends upon some trouble in the appendix, which falls short of producing suppuration.

As to treatment, Mr. Treves make the following recommendations:

1. Cases that may be considered to belong to the first described variety of typhlitis, the mildest form, do well under the recognized medical treatment. The patient is kept absolutely at rest, opium is cautiously administered, the least possible amount of fluid food is given, leeches are applied to the skin over the right iliac region, or some rubefacient fomentation is made to cover the abdomen.

At an early period the colon is evacuated by enemata, and for a considerable time the diet is restricted to the simplest and most easily digested elements.

2. In the treatment of that variety of typhlitis in which suppuration is expected to occur or to have occurred, surgical measures stand preëminent, and in their application a careful judgment must be exercised. It is to be assumed that in every instance rest will be insisted upon, opium given, the colon cleared by an enema, and the diet reduced to starvation limits. Opium should be given in the smallest efficient doses. If recklessly administered it is apt to mask the symptoms to an undesirable degree.

It may be anticipated that an incision will have to be made to meet the simple surgical principle, *ubi pus, ibi evacua*, and in connection with this incision three points have to be considered: *a*, the time at which the incision should be made; *b*, the preliminary use of the exploring needle; and *c*, the site of the incision.

*a*. In connection with the first point, it may be said that the use of the knife will very rarely be called for before the fifth day. Indeed, I venture to think that surgical interference before the fifth day should not be taken except in the presence of very emphatic symptoms. The great majority of the operations for typhlitis are performed after the first week. *b*. The exploring needle has been extensively employed by American surgeons, but, in spite of their advocacy, I think that its use is to be strongly condemned. *c*. The best situation for the incision cannot be settled in an arbitrary manner. It should be placed over that part of the inflamed area which appears to cover the seat of suppuration. This can be usually fairly well made out during an examination under ether, provided that such examination include a digital exploration through the rectum. It is desirable that the pus should be reached by the shortest route, and allowed to escape in the most direct manner. The most convenient incision is one made obliquely from above downward and inward just external to the deep epigastric artery, ending a little above and to the outer side of the middle of Poupart's ligament, and following the general inclination of the wound made for securing the iliac vessels.

3. In relapsing typhlitis operation for removal of the appendix promises excellent results, if performed during the interval between the attacks.

#### THE TREATMENT OF HERNIA.

DR. JOSEPH D. BRYANT advances (*The Medical Record*, November 9, 1889) the following propositions in regard to the value of the mechanical treatment of hernia: 1. No form of truss yet constructed can be relied upon to cure any variety of simply reducible hernia. 2. The manner of the production of hernia, and that of its so-called cure by mechanical appliances, are such that cure by mechanical appliances, alone, need not be expected now, or hereafter. 3. Practical relief from the annoyance of a hernial protrusion may be had by the use of hernial appliances, which, however, ought always to be worn during all unusual physical efforts. 4. The so-called cures from hernial appliances are dependent on the restoration of displaced tissues to the normal position, and to obliteration due to natural resiliency of tissues; not, as is often claimed, to the inflammatory adhesions of serous surfaces, caused by special mechanical effects. 5. The hard, slightly convex pad, with the elastic steel spring attached, constitutes the principal part of the most philosophical,

comfortable, cleanly, and durable of hernial appliances. 6. Suspension, elevation, and protection of irreducible hernial protrusions, are the main indications for this mechanical treatment.

As regards the use of taxis, Dr. Bryant believes: 1. That the abuse (not the use) of taxis constitutes an evil against which all surgeons should protest. 2. That a quarter of an hour of well-directed and continuously applied taxis is a rational procedure; longer than this is unnecessary, and therefore unwise and harmful. 3. That repeated attempts at reduction, on the part of different persons, is pernicious. 4. That the present status of operative surgery has reduced the successful employment of taxis to the position of rendering but little practical benefit to the patient except in special cases.

The propriety of performing the operation for the radical cure in all cases of herniotomy is insisted upon.

He concludes with the following statement as to the procedures to be adopted in cases of intestinal mortification: 1. When gangrene of the intestine has taken place, and the condition of the patient will permit, intestinal repair should be practised at once, and the gut returned to the abdominal cavity. 2. When gangrene has occurred, presumptively involving a portion of the upper two-thirds of the intestine, intestinal repair should be practised at once, and the gut returned to the abdominal cavity, even if the immediate result of the operation be somewhat doubtful. 3. When gangrene has occurred, and the condition of the patient will not permit immediate operation, a temporary artificial anus should be formed. 4. It is better to form an artificial anus, under all circumstances, when the medical attendants are not familiar with the details of intestinal surgery. 5. Division of the constriction is not always necessary, and is often unwise when the formation of an artificial anus is contemplated.

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#### INGUINAL CYSTOCELE.

MM. MONOD and DELAGÉNIÈRE (*Revue de Chirurgie*, September 10, 1889) express, as follows, their views as to the pathogeny of inguinal cystocele:

(1) The bladder, having become more or less incompetent, is more or less permanently dilated, and thereby has relations with the abdominal wall which favor its hernia.

(2) When this hernia shows itself, the bladder always presents by its anterior wall covered with fat.

(3) The hernial tumor is at first a lipocèle; the hernia of the bladder which follows it is prepared and facilitated by the fatty hernia.

(4) The inguinal cystocele being, in the beginning, formed by a portion of bladder not covered by the peritoneum, is in the first phases of its evolution void of sac.

(5) In proportion as the most elevated parts of the bladder engage in the ring, the peritoneum which covers them accompanies them in their movement of descent, and it forms a sac—at first a lateral sac, then almost complete.

(6) This sac may be found empty, or the reverse, and it behaves like an ordinary hernial sac.

(7) An old cystocele may be without a sac when, for any reason, the perivesical peritoneum does not descend with the bladder.

## PNEUMATURIA.

PROF. FRIEDRICH MÜLLER, of Bonn (*Berliner klinische Wochenschrift*, October 14, 1889), considers the accumulation of gas in the bladder and its passage through the urethra to be a rare condition usually depending upon a vesico-intestinal communication. He records a case in which carcinoma of the rectum was followed by the escape of intestinal gas *per urethram*. In other cases, however, he has demonstrated that the gas originated in a fermentative process in the urine itself. This has been the condition in most of the reported cases. Microorganisms have, probably, in every case, been introduced upon instruments. A slight degree of glycosuria existed in all his cases. The condition has not yet been observed in the female. It is not dangerous, and does not, of itself, require special treatment.

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EXTIRPATION OF THE BLADDER AND TOTAL EXCISION OF THE VESICAL MUCOUS MEMBRANE.

BROHL communicates (*Wiener med. Presse*, Nos. 27 and 28, 1889) four cases in which Bardenheuer for the first time undertook the extirpation of the entire bladder in the living human subject. They are briefly as follows: 1. A man, fifty-seven years of age, had a swelling occupying the whole fundus of the bladder and extending more to the right than to the left side. The bladder was removed. For ten days the wound looked well, and was rapidly granulating, but death from uræmia occurred on the fourteenth day. 2. A girl, seven years of age, had primary vesical tuberculosis. The whole mucous membrane of the bladder was excised. Healing was complete. She lived one and a half years, and died of a return of the disease in the peritoneum. 3. A man, sixty-four years of age, was found to have infiltration of the vesical mucous membrane, with little grayish-white nodules of pin-head size, and a large papillomatous swelling of the posterior wall of the bladder. The entire mucous surface and all that portion of the wall of the bladder containing the tumor, was removed. There were several complications, but he recovered with a urinary fistula. 4. A man, thirty years of age, had little tumors of the size of cherries studding his bladder wall, which had undergone cicatricial change in the vicinity of the ureters. Total excision of the mucous membrane was performed. Complete healing followed.

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OPERATIONS FOR THE RELIEF OF PRESSURE PARALYSIS IN SPINAL CARIES.

DRS. W. N. BULLARD and H. C. BURRELL report (*The Boston Medical and Surgical Journal* of October 24, 1889) a case of resection of the spines and laminae of the third, fourth, fifth, and sixth dorsal vertebræ in a case of spinal caries in a man forty-six years of age. The patient was completely paraplegic, suffering greatly, and having large bed-sores and marked cystitis. The operation lasted one and three-quarters hours. Death occurred in thirty-six hours from shock. The authors briefly review the subject, concluding that operation is undesirable, except where spontaneous recovery has become otherwise well-nigh hopeless. They add:

We have thus far been able to collect only eleven published cases in which an operation for the removal of compression has been performed upon the spinal cord, omitting Abbe's case, which, though counted by White, seems doubtful. (These are: Macewen, five; Horsley, Duncan, Lane, Dercum and White, Wright, Thompson, each one.) To these we add our own case, making twelve in all.

Three cases (Macewen's) were successful, four were very much benefited, and some of these, notably Duncan's, should probably be classed as successful. One (Wright's) had recurrence of the former symptoms in two months. Four died, one in thirty hours, one in thirty-six hours, one in a week, and one in a few months; the two latter of general tuberculosis. Of these, the age is given in only seven. Five were children under fourteen years of age. Two were adult males. Of the children, one became well, three were at least much benefited, in one the symptoms recurred. Both the adults died of shock. The results of these cases are, on the whole, favorable, and we are warranted in looking forward to much better ones as progress is made in surgical technique.

They sum up the results of their investigation in regard to the operation as follows:

Contra-indications: (1) General health and general surgical considerations; (2) the presence of tuberculosis in other parts of the body; (3) the presence of an abscess connected with the caries which can be otherwise evacuated; (4) acute exacerbation of symptoms referable to the cord, and not threatening life.

Indications in favor of an operation are: (1) General good condition and favorable surroundings; (a) when the disease is gradually and slowly progressing to an unfavorable termination; (b) when the patient has more or less complete loss of motion and sensation in the portions of the body below the level of the lesion, and incontinence of urine and feces, and where these conditions have lasted for a sufficient length of time to render spontaneous recovery improbable, and not so long as to have produced permanent destruction of all recuperative power in the cord (2) Where acute symptoms threatening life appear, and where there is reasonable expectation that they may be relieved by the removal of compression.

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#### PERFORATING ULCER OF THE FOOT.

MM. TUFFIER and CHIPAULT, after carefully studying several cases of *mal perforant*, two of which they report, arrive at the following conclusions (*Archives générales de Médecine* for October, 1889):

1. There exists in certain cases, at the earliest period of the disease, an arthritis of the articulation immediately adjoining the affected region.

2. This arthritis may precede the ulceration.

3. When the *mal perforant* is unilateral, the arthritis may be bilateral and may usher in a perforating ulcer of the opposite side.

4. This articular disease, like the accompanying anæsthesia, persists after the ulceration has healed.

5. The two lesions, the ulcer and the arthropathy, are independent of each other, but are due to the same cause.

## OTOLOGY.

UNDER THE CHARGE OF

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## THE TELEPHONE AND AFFECTIONS OF THE EAR.

M. LAUNOIS, of Lyons, France, alludes to the observations of Blake, of Boston, upon the effects of the habitual use of the telephone upon the already diseased ear, and offers the following conclusions (*Annales des Maladies de l'Oreille*, October 18, 1889):

1. The frequent use of the telephone seems to have no bad effect on the healthy ear, but is injurious to an ear already previously affected.
2. Its use brings about a further diminution of hearing by fatigue of the auditory attention, tinnitus aurium, and various subjective noises, headache, vertigo, nerve hyperexcitability, and even temporary psychic disturbances.
3. These symptoms are often transitory and disappear when the ear grows accustomed to the use of the telephone. In all cases they disappear nearly entirely with cessation of employment of the instrument.

## THE NEW PHONOGRAPH OF EDISON AS A UNIVERSAL ACOUMETER.

DR. L. LICHTWITZ, of Bordeaux, proposes the employment of Edison's new phonograph as the universal acoumeter (*Annales des Maladies de l'Oreille*, October, 1889). At present the three tests of hearing are the watch, the tuning-fork, and the human voice. The first-named is very poor, the last-named is the best. The characteristics of a good acoumeter are then given as follows:

1. The acoumeter should be able to emit all the sounds perceptible by the normal human ear, especially speech in all its inflections.
2. It should be a constant source of sound in order to facilitate a comparison of hearing in different patients, and in the same patient at different epochs of his disease.
3. It should be an apparatus of uniform construction, in order to render its employment universal among aurists of all countries, and make the registration of audition easily comprehensible, as the ophthalmologists can do in regard to vision.
4. Its employment should be easy, without requiring too much time or space for its use.
5. It should render possible the measurement of the sharpness of hearing both by aerial and cranio-tympanic conduction.

The new phonograph of Edison possesses, if not all of these qualities, at least the first two, which are indispensable in a good acoumeter, and it is said to be possible, by some modifications, to give this instrument all the desired qualities of a perfect acoumeter.



## ON THE REMOVAL OF BONY GROWTHS FROM THE EXTERNAL AUDITORY CANAL.

A discussion, at the late meeting of the British Medical Association, was introduced by the opening address of Mr. George P. Field, president of the Section of Otology on the above-named subject.<sup>1</sup>

SIR WILLIAM DALBY, St. George's Hospital, London, in his remarks, gave a brief account of the circumstances under which the removal of bony growths from the external auditory canal by means of drilling, came into use. He stated that previous to the end of the year 1874 he had conceived the idea of removing bony growths from the external ear by means of drilling, and he had already, before that time, removed outgrowths "by passing into them through three needles a continuous current of electricity from six pairs of plates of Stöhrer's battery." This process is slow, however, and will not answer where immediate relief is demanded.

Time is saved by using an ordinary Cutriss electro-motor, to the spindle of which is attached a long flexible arm, terminated at its free extremity by a hand-piece adjusted to hold any required instrument. The rate of revolution is completely controllable by means of a resistance coil, and can be varied from 200 to 5000 turns a minute.

It was found that 2500 revolutions was the limit of speed which could be used. Less velocity would not grind the tumors away; and greater velocity, by its tremendous friction, produced excessive heat, and destroyed the temper of the burrs. The oozing of blood is controlled by the heat of the friction produced by even the proper number of revolutions per minute, the heat coagulating the albumen and checking the hemorrhage. Slipping of the instrument is prevented by using the steel guard of Mr. Field.

Much valuable detail regarding conducting the operation is given in the remarks of Sir William Dalby.

The next speaker was Mr. A. MARMADUKE SHEILD, of Charing Cross Hospital. His remarks were chiefly in favor of displacement of the auricle as a means of getting at and removing exostoses from the auditory canal; and he reported a case thus operated upon by him. His conclusions are:

"1. That the operation of displacing the auricle is free from any special difficulty or risk, and gives remarkable access to the deeper parts of the canal.

"2. That it may be undertaken in special cases of impacted foreign body, or in cancellous exostosis, or possibly as an adjunct to the operation of drilling."

MR. THOMAS BARR, of Glasgow, the next speaker, confined his remarks to the consideration of those cases of exostoses of the auditory canal which do not call for operative treatment, but "in which the osseous tumor seems to close entirely the external canal of the ear, producing almost total loss of hearing power, and yet where, after a period of treatment not involving operation, the hearing returns to its previous condition." Then follow some illustrative cases, in which it was shown that, "where slight almost imperceptible swelling of the cutaneous lining produces the closure, we are apt to

<sup>1</sup> Noticed in this Journal, October, 1889.

regard operative removal as the only method likely to improve matters, but it is well to remember, in considering the question of operation, that there are cases in which the hearing may spontaneously, or as the result of simple treatment, be restored; and that operation may often thus be postponed for years, and may, indeed, never be called for."

MR. R. C. ELLIS, of Newcastle-on-Tyne, next related the case of a girl in whose ear a bony growth simulated a foreign body, causing deafness. This was diagnosed as an exostosis springing from the annulus tympanicus. The presenting portion of the growth "from its nipple-like form, allowed of its being seized by a dentist's curved forceps," and extracted like a tooth. Its removal was followed by considerable hemorrhage. At the end of a week's treatment the hearing was found entirely restored.

The last communication on this subject was from PROF. ADAM POLITZER, of Vienna. It referred chiefly to four specimens of exostosis in the auditory canal. The first was in a skull brought from the island of Borneo. The second specimen was a temporal bone showing a pedunculated exostosis at the entrance of the osseous meatus, springing from the outer part of the anterior convoluted portion of the tympanic bone, and having a small, slender pedicle, and was about the size of a pea. The third specimen was that of an exostosis the size of a pea, removed from the lower wall of the meatus of a healthy man. It was attached by a constricted base to the lower wall of the osseous canal, and very easily seen when the auricle was drawn backward. The favorable situation of the growth permitted its ready removal by two moderately strong blows of a mallet upon a flat gouge applied to its base. The surface of the wound was sprinkled with iodoform and it cicatrized in a few days, without suppuration.

In closing the discussion, MR. FIELD drew attention to the fact that soft osseous growths, which occasionally result from chronic suppuration in the ear, are much more simply dealt with than the hard ivory exostoses, with broad base, which grow in the auditory canal; and he claimed that he was the first, in England, to remove such ivory growths from the ear.

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#### ANATOMICAL LESIONS OF THE ORGAN OF HEARING IN ENDOCRANIAL AFFECTIONS IN GENERAL, AND IN VARIOUS FORMS OF MENINGITIS.

DR. J. GRADENIGO, of Turin, read a paper on this subject at the International Congress of Otology and Laryngology, Paris, September, 1889.

His communication was based on the post-mortem examination of nine cases, as follows: Three cases of tuberculous meningitis, one case of purulent meningitis consecutive to an acute otitis media, two cases of cerebro-spinal meningitis, and three cases of cerebral tumor.

His conclusions are:

I. In various forms of meningitis (in all of the six examined by Gradenigo, there is frequently found an inflammatory alteration in the trunks of the seventh and eighth nerves in the internal auditory canal, consisting in hemorrhages and purulent accumulations and infiltrations, due to the propagation of the infectious agent along the sheaths of the nerves. At the entrance of the internal auditory canals these alterations are usually localized in the inter-vaginal space and in the intra-fascicular cavities

of the connective tissue. Near the bottom of this canal the two nerves present different conditions; along the facial nerve, on account of the thickness of the nervous trunk, the tendency to exudation is maintained as far as the geniculate ganglion, with relative integrity of the nerve fibrillæ along the acoustic nerve; on the contrary, the hemorrhagic and purulent exudation penetrates between the nerve-fibrillæ which separate at the fundus of the canal to enter the modiolus, and which are thus compromised or destroyed to a large extent.

Thus is explained the pathogenesis of Voltolini's disease (*otitis labyrinthica*), which is evidently caused by an acute neuritis in the auditory nerve, due to a diffusion of the infectious process in the meninges, with occasionally propagation to the internal ear. The difference in the processes in the facial and acoustic nerves is due to the anatomical differences between the two nerves. The alterations thus described are analogous to those met in other cerebral and peripheral nerves in certain acute and infectious maladies, and in the case of the acoustic nerve in diphtheria (Moos).

In the majority of cases of meningitis of fatal termination, examined by the author, the neural changes, which could be followed to the geniculate ganglion and along the canalis singularis, did not pass beyond the *tabula cribrosa*. In some cases only traces of infiltration could be seen along the nerve-fibrillæ and in the gyrus basilaris of the ganglion of Rosenthal, so that we are warranted in believing this is the usual way of propagation of the morbid process to the labyrinth. The aquæductus cochleæ was always found intact by Gradenigo.

In the majority of his cases, the author has met tympanic lesions, at least on one side, in the form of otitis media, with mucous or purulent exudation, and in one instance hemorrhagic exudation. This connection apparently existing between such lesions and the infectious meningitic process, the author cannot yet venture to explain.

II. In endocranial affections, accompanied by an augmentation of pressure and of optic papillitis, there may also arise in the acoustic nerve a lymphatic stasis, which is revealed only by an augmentation of electric excitability of the nerve.—*Annales des Maladies de l'Oreille*, September, 1889.

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#### THE PERFORATION OF SHRAPNELL'S MEMBRANE.

DR. B. ALEXANDER RANDALL, of Philadelphia, read a paper on this subject at the meeting of the American Otological Society, July, 1889. His special purpose in this article is to lay stress upon the point that perforation of Shrapnell's membrane is far from infrequent, and to claim that constant vigilance in this direction will bring to light an unexpectedly large number of cases. Notes of twenty cases are given, in twelve of which the perforation was in Shrapnell's membrane alone; in six there was another perforation (in the membrana vibrans) generally extensive; in two the lower perforation had cicatrized when the upper was first seen to discharge. The author then discusses the existence of the so-called "foramen of Rivinus," and denies its existence. The weight of authority is on his side.

Nothing is offered in this paper as a cure for the form of chronic purulency of the tympanic cavity having its outlet through the perforation in the flaccid

membrane. In the experience of the reviewer, this form of purulency of the attic is a symptom of necrosis in that part of the drum-cavity, and nothing but drainage, to be secured by excision of the membrana tympani, and the malleus and incus, and a thorough medication of the diseased attic, will effect a cure. Not only will a cure of the purulency be thus gained, but the hearing, which is always impaired in this disease, may be improved by the operation.

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## DISEASES OF THE LARYNX AND CONTIGUOUS STRUCTURES.

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UNDER THE CHARGE OF

J. SOLIS-COHEN, M.D.,  
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### ANGIOFIBROMA OF THE TONGUE.

DR. GEORGE FISCHER describes (*Deut. Zeitschr. für Chir.*, September 5, 1889, p. 581, 29 Bd. 5 u. 6 H.) a mixed tumor of the tongue, composed of cavernous angioma and fibroma, and which, to the best of his knowledge, has not been described before.

A cabinetmaker, thirty-seven years of age, who had never been sick before, noted under the left side of the lower jaw a tumor the size of a hazel-nut. It was movable and painless, and it gradually enlarged. About nine months after this he became conscious of a swelling in his mouth which enlarged, and which in three months produced difficulty in swallowing and in talking. At this time he began to expectorate dark blood. Three months later, when first seen by Fischer, he presented a cachectic aspect and was poorly nourished, yet appetite and sleep were good. A large tumor, eight and two-thirds inches in its largest horizontal circumference, stretched from one angle of the lower jaw to the other, circumscribed by the anterior borders of the sterno-cleido muscles. It reached to the hyoid bone, which was pushed downward to a distance of three and one-fourth inches from the edge of the chin. It was slightly furrowed in its middle, and projected more on the left side than on the right. It was very soft and fluctuating. A single vein glimmered through the normal and non-adherent skin. A slight pulsation existed in the left side of the tumor, isochronous with the radial pulse. The mucous membrane of the floor of the mouth projected behind the teeth. The left half of the tongue appeared thickened and was strongly pushed upward, so that the base of the tongue nearly reached the hard palate. A futile attempt was made to remove the tumor. After the operation had lasted an hour and a half, collapse began and was soon followed by death despite several injections of camphoric ether. The tumor in the neck became much smaller during the operation; and when extirpated, after death, was found principally lingual, to which the mass in the neck hung as an appendix. Examination of the tumor showed it to be an

angiofibromatous hypertrophy. Both forms existed in the tongue, and cavernous angioma only in the cervical portion. The primary tumor was a cavernous angioma at the base of the tongue. It grew into the left half of the tongue, where it produced fibrous degeneration, and thence extended to the right side of the neck. Details of the macroscopic and microscopic appearances are given. The article is followed by a summary of the subject of lingual fibroma, with remarks on diagnosis and treatment. The opinion is expressed that such tumors cannot be extirpated with the knife, and that thermo-caustic or electrolytic treatment presents the proper procedures.

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#### INTUBATION.

Intubation is steadily growing in favor in Germany, although the results there have not been as proportionally successful as in the United States; probably from lack of experience in the clinico-technical requirements. At a meeting of the *Deutscher Naturforscher und Aerzte in Heidelberg*, September 19, 1889 (*Münchener med. Woch.*, October 15, 1889) PROF. RANKE reported that he had practised intubation in 65 (66?) cases. Of 50 children with primary diphtheria, 15 were saved, 30 per cent.; while of 16, in whom the diphtheria was secondary to other diseases, only one was saved. In two of the primary cases saved it became necessary to perform tracheotomy secondarily; and two died at a later date from pulmonary disease. He, therefore, considered the results as yet inferior to those from tracheotomy. Prof. Ganghofner's experience was similar. He had practised 41 intubations. In the greater number tracheotomy became necessary; in 4 of them immediately after the intubation. He had but four successes in contra-distinction to eight successes in 45 tracheotomies.

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#### INTUBATION IN STENOSIS AFTER TRACHEOTOMY; AND IN PAPILLOMA OF THE LARYNX.

Difficulty in removal of the canula has been found by RANKE (*Münchener med. Woch.*, October 15, 1889) chiefly due to granulation stenosis after crico-tracheotomy, or from ulceration by pressure of the canula. Such difficulties have ceased entirely since he had performed lower tracheotomy in preference. He mentioned two cases of stenosis from granulations, in one of which success followed energetic scraping of the larynx from the tracheal wound. In the second case, however, neither this procedure nor any other had succeeded, even including splitting of the larynx. Intubation was then practised, and the canula was withdrawn. The pressure of the tube caused absorption of the granulations, and the patient was thus cured. Ranke mentioned, also, that he had had splendid results from prolonged use of the tube in two cases of diffuse papilloma of the larynx in children.

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#### LARYNGECTOMY FOR CARCINOMA.

DR. E. BOCCOMINI reports (*Gaz. med. Lombarda*, October 12, 19; *British Medical Journal*, November 23, 1889) a case in a man fifty-four years of age. The patient became hoarse August, 1887. In March, 1888, Prof. Labus diag-

nosticated epithelial carcinoma of the right vocal and ventricular bands. Tracheotomy became imperative on September 27th. Complete extirpation was practised October 25th. The œsophageal feeding-tube was removed on the seventh day, and liquids could be swallowed sufficiently well to dispense with artificial feeding. On the eighteenth day solid substances, like fried brain, chicken, and bread could be swallowed. On the twenty-seventh day the wound was healed except as to a tiny fistule under the hyoid bone. The patient remained in perfect health for several months, taking ordinary diet, and attending himself to his tube. About the middle of February, 1889, recurrence began in the neck; dysphagia ensued; and death took place by exhaustion April 19th, five months and twenty-days after the operation.

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#### EXTERNAL ELECTRIC TREATMENT OF LARYNGEAL DISEASES.

DR. TH. CLEMENS asserts (*Therap. Monatshefte*, August, 1889) that there is hardly an organ of the body more accessible than the larynx to electric currents from the exterior. He has seen the most obdurate syphilitic scleroses resolved under the influence of the induced current; and has seen growing indurated papillomas entirely absorbed. Still more quickly and even suddenly has he seen its beneficial influence in purely neurotic affections. He has seen unsupportable cough subside within five minutes under the influence of an electric current passed transversely through the larynx; and with permanent diminution of the intensity of the irritation in the larynx. Similar curative influence is attained in supersecretions of saliva and in catarrh of the larynx. Complete and permanent cures, however, require prolonged treatment.

In most instances Clemens uses small moistened compresses at the side of the larynx, upon which he places button-shaped electrodes, from one to two centimetres diameter. The free surface between the compresses is first carefully dried, and is then rubbed over with a drop of oil to avoid side currents. Sometimes he uses adhesive plaster for the same purpose, or rubs in some lycopodium powder. In this manner, induced currents which could not be tolerated intralaryngeally are well supported for periods of from ten to twenty minutes.

In diphtheria, he has produced, with currents passing from the neck to the tonsils, movements of gagging far more energetic than are produced with emetics, and much more prompt in detaching pseudo-membrane from the larynx.

He has often employed the electric transportation of medicaments, and he reports two successes in severe cases of syphilitic dysphonia, managed as follows: He places on each side of the larynx a small six-layered compress of linen, about one and three-eighths inches square, well saturated in an iodized solution. This solution is composed of nine drachms of table salt in two quarts of spring water, in which three drachms of powdered pure sodium bicarbonate are dissolved, and to which fifty drops of tincture of iodine are added after it has stood for twenty-four hours. This is agitated every hour until the solution becomes colorless and free from crystals; when it is ready for use. The electrodes consists of round gilded brass plates about two and one-half centimetres in diameter. The current is passed three or four times

a day for a quarter of an hour at a time. After each sitting the compresses are freshly saturated with the iodized solution and then covered with gutta-percha until the next sitting. The results have been astonishingly good.

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#### GRANULATIONS IN THE TRACHEA AFTER TRACHEOTOMY.

DR. TH. KOESTLIN (Bruns' *Beit. z. Chir.*, etc., iv., Bd. II., H. 9; *Therap. Monats.*, August, 1889), as the result of his observations in the clinical service of Dr. Bruns, warmly recommends brushing out the trachea with a sponge tampon, after Voltolini's method of removing soft neoplasmata.

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#### PREPARATIONS OF SOZOIODOL IN DISEASES OF THE NOSE AND THROAT.

DR. JOSEF HERZOG, of Graz (*Therap. Monats.*, August, 1889), has used these preparations in more than one hundred patients; in sixty-five of them the progress was carefully noted. He used the sodium, potassium, zinc, and mercury salts, mitigated with equal proportions of Venetian talc. The mercurial salt was used in ointment 1 : 50 of lanolin, in sores, excoriations, fissures, and eczemas of the nostrils, on fourteen patients; lesions of many weeks' standing yielding in from three to twelve days, or more promptly than by any other medication. Insufflations of the mercurial, 1 : 20, 1 : 10, in purulent discharges from the nose were much more painful than iodol or boric acid, and were not more efficacious. The zinc salt, 1-2 : 10, was used in all forms of chronic rhinitis, but was found serviceable only in cases of dry catarrh, in which it promoted secretion and produced slight deturgescence of the turbinate bodies. It was particularly useful in the fetid forms of the disease. Herzog's best results were attained with the sodium and potassium salts, the latter especially. These were attained in simple chronic rhinitis, in retro-nasal catarrh, and in two cases of tuberculous laryngitis. The applications were made daily or at intervals of two or three days, as conditions indicated.

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#### ELECTRIC TRANSILLUMINATION OF THE MAXILLARY ANTRUM IN EMPYEMA.

VOLTOLINI's method of illuminating the antrum with an incandescent Edison lamp in the mouth (*Breslauer Aertz. Zeitschr.*, 1888, No. 22) is highly extolled by HERYNG, of Warsaw (*Berlin. klin. Wochenschr.*, September 2, 1889), who practised it successfully in twelve cases, and demonstrated the procedure to the Medical Society of Warsaw. An Edison lamp of four to five volts is attached to a tongue depressor, and illuminated in the closed mouth after the room has been thoroughly darkened. The darkness of the room is essential, and too powerful a light destroys the effect. Heryng has noted that the normal translucence of the antrum is not produced in cases of empyema; and he lays stress upon this point as the most important feature in the entire diagnosis of the lesion. The translucence of a serous cyst will serve for its discrimination from empyema, and the distention of the antrum is very evident in the transillumination. At the time that Voltolini demonstrated his method of rendering the cheek and the bone diaphanous, he had not appreciated this distinction.

[The compiler can commend transillumination by Voltolini's method most highly in infiltratory diseases of the palate, the septum of the nose, the rhinopharynx, and the nasal passages, as the most important adjunct available in diagnosis by inspection. In diseases of the larynx, however, he has not yet been able to determine any particulars which have not been more thoroughly disclosed by ordinary illumination.—ED.]

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## DERMATOLOGY.

UNDER THE CHARGE OF

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### INOCULATION OF LUPUS.

At the weekly clinical conference of the physicians of the Hôpital St. Louis, M. A. TROUSSEAU presented (*Annales de Dermatologie et de Syphiligraphie*, September, 1889) two rabbits, into the eyes of which he had successfully inoculated some particles of lupus coming from the conjunctiva of a young woman. Upon the one rabbit an aseptic puncture was made at the margin of the cornea with a triangular knife, and through this opening a small particle of lupus tissue was introduced into the anterior chamber, just at the centre of the pupil, by means of a slender silver spatula; hernia of the iris being avoided by the instillation of eserine. There was no inflammatory reaction, the nodule gradually diminished in size, and eight days after its introduction was totally absorbed. During the ten days following nothing was noticeable. On the twelfth day following its complete absorption there could be seen a peculiar swelling, apparently a folding of the iris. Upon its surface there appeared some small white points which increased both in number and size, and assumed the aspect of true nodules. At the time of presentation of the animal the anterior chamber was filled with these yellowish deposits, some minute, others as large as peas.

In the other rabbit the inoculation was made into the corneal laminæ, and after eight or ten days was completely absorbed without any reactionary irritation. Fifteen days later a grayish point appeared in the cornea which increased in size, forming a yellowish tumor, elevating the anterior laminæ of the cornea. Bacilli were found.

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### ADENOPATHIES SECONDARY TO LUPUS VULGARIS.

The adenopathies sometimes seen in connection with lupus, as LELOIR observes (*Journal de Médecine de Paris*, August 11, 1889), may be simply in-



flammatory or may be tuberculous; in the latter instance, often consecutive to an invasion of the virus from the lupus region. These adenopathies secondary to lupus must not, however, be confounded with the scrofulo-tuberculoses which may have been present before the lupus appeared. Lupus adenopathies are somewhat rare; they develop or are located in the ganglia or glands in which the lymphatics from the lupus patch terminate. Moreover, they are distinctly tuberculous and appear some time, usually quite late, after the development of the lupus. Those of a caseous suppurating character may be due to the additional absorption of the microorganisms of suppuration. The true tuberculous nature of these secondary adenopathies the author substantiated by bacteriological examination and by intra-peritoneal injection in guinea-pigs and into the anterior chambers of the eye in rabbits, positive results being obtained in each instance.

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#### FURUNCULOSIS AND POLYURIA.

In a paper upon this subject (*Annales de Dermatologie et de Syphiligraphie*, September, 1889) SPILLMANN and PARISOT endeavor to show that furunculosis, even when accompanied by abundant discharge of urine, is far from having the diagnostic and prognostic importance usually attributed to it, although they recognize the fact that sometimes these furuncular outbreaks lead to the discovery of an unsuspected diabetes. Their observation tends to show that furunculosis is not uncommon in any form of increased urination, whether saccharine or of the type diabetes insipidus. The writers regard the loss of water as the essential factor in the production of furuncles in these cases, the vitality of the skin is compromised by this dehydration and becomes less capable of offering resistance to microbic invasion.

Their conclusions may be thus stated: 1. Furunculosis associated with polyuria does not always constitute a certain indication of glycosuric or azotinic diabetes. 2. Furunculosis may accompany simple or symptomatic polyuria. 3. Furunculosis is developed in the course of diabetes because of the dehydration of the tissues, and more especially because of the malnutrition of the skin.

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#### A CASE OF PARTIAL SCLERODERMA, FOLLOWED BY ATROPHY, COMBINED WITH ALOPECIA AREATA.

ROSENTHAL reports (*Berliner klinische Wochenschrift*, August 26, 1889) a case of partial scleroderma (morphœa) involving the side of the face of a girl of eight years, followed by atrophy, and associated with bald spots on the scalp of the same side. The condition was first noticed when child was four years old, and began as one or more white vitiligo-like spots, first on the left side of the neck, then on the face and scalp. A few years later several bald spots had made their appearance, and shortly after this atrophic changes of the affected side of the face began to take place. The whitish spots were slightly infiltrated and inelastic. When examined the whole of the left side of the face was atrophic, hard, and appeared as if stretched. In some places, especially about the borders of the white spots, freckle-like pigmentation was noticed. There were several bald patches in the scalp, and several patches of white hair; and the eyebrows and eyelashes were also more or less completely

involved in the loss of hair. At the right side of the neck, near the median line, was also a vitiligo-like spot. The general health was good. There was, apparently, no assignable cause.

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#### CREOLIN ECZEMA.

Several surgical cases are reported (*Therapeutische Monatshefte*, June, 1889) by WACHEZ, in which creolin, 1 : 1000, was employed as a dressing, and its use rapidly resulted in an eczematous eruption of an acute type. General symptoms of malaise, loss of appetite, headache, and at times vomiting, pointing toward toxic effect from absorption, were also noted. The eruption was limited, for the most part, to those organs with which the dressing came in actual contact, but in a few instances there was a tendency to outbreak elsewhere, the irritant probably having been carried to those parts by the finger. The eruption made its appearance on the second day after the dressing had been used. The patients were all children.

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#### IS LEPROSY CONTAGIOUS?

Under this heading (*Monatshefte für praktische Dermatologie*, October 1, 1889) PROF. SMIRNOFF, of Helsingfors, refers to the diametrically opposite views put forth by two authorities, Hansen, of Bergen, and Zambaco, of Constantinople. The former expressed himself, at the International Medical Congress in Copenhagen, in 1884, in favor of the contagiousness of the disease, while the latter states that he had never observed a single instance in proof of contagion. Smirnoff cites the case of a married woman affected with anæsthetic ulcerative leprosy, who had lived with her husband for fifteen years without having communicated the disease to him. Two children were born during a period when the disease seemed to be progressing, both of whom were still healthy at the age of one and two years respectively. The author thinks that this case speaks in favor of Zambaco's and against Hansen's views, and that leprosy is neither contagious nor inheritable.

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### OBSTETRICS.

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#### UNDER THE CHARGE OF

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#### PEPTONURIA IN PREGNANCY AND THE PUERPERAL STATE.

THOMSON (*Deutsche med. Wochenschrift*, No. 44, 1889) has examined the urine of 4 women pregnant with living children, 4 pregnant with dead children, 3 women in labor, and 12 during the puerperal state, for peptone. His

conclusions were that peptone is not characteristic of pregnancy, nor is it a symptom of a macerated or dead fœtus. During the puerperal state it may be present in the urine after the second day, but it is not a constant phenomenon.

KOETTNITZ (*Ibid.*) has examined the urine of 31 pregnant women, making 140 analyses for peptone, with the conclusion that it is not present invariably when the fœtus dies. It is sometimes found as the result of the absorption of the macerated tissues of a dead fœtus, but also in healthy pregnant women in whom the fœtus is living; its presence is at times a physiological and pathological phenomenon. He reports in detail the case of an epileptic primipara suffering from kidney and heart lesions with asthma delivered artificially of macerated twins. Labor was complicated by eclampsia, and peptonuria was present.

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#### HÆMATOMA OF THE VAGINA, FOLLOWED BY SUPPURATION, AFTER SPONTANEOUS LABOR.

MATTHEWS DUNCAN (*Transactions of the London Obstetrical Society*, vol. xxxi., 1889) reports two cases of small hæmatomata of the vagina occurring after spontaneous labor, in which suppuration occurred with high temperature. In one the discharge was putrid, and the patient died; in the other no fetor was present, and recovery ensued; hemorrhage occurred from the laceration immediately after labor. Treatment consists in keeping the cavities aseptic.

A case of hæmatoma of the labium is also described, in which the tumor was as large as a child's head, and communicated with the vagina by an opening one inch long. Although free suppuration occurred the patient recovered.

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#### AN ANTERO-POSTERIOR FORCEPS.

FRY (*American Journal of Obstetrics*, November, 1889) has devised a forceps for antero-posterior application to the head when rotation fails. The long posterior blade has a pelvic and cephalic curve combined; the anterior blade has the concave surface of the cephalic curve looking backward; the pelvic curve looking forward. The shape of the blades is White's Hodge; the shanks are placed laterally; Siebold's lock is employed. The forceps is sixteen inches long. A traction rod and compression screw for high application are added. The anterior blade is applied first; the posterior goes to one sacro-iliac joint and is thence slid in front of the sacrum. Rotation should not be attempted until the pelvic floor is reached.

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#### TWO CASES OF RUPTURED UTERUS TREATED BY LAPAROTOMY.

REED (*New York Medical Journal*, November 9, 1889) reports a shoulder presentation in a multipara in whom the uterus ruptured. The child was at once delivered alive by forceps. Five hours after rupture the abdomen was opened, a laceration of the anterior uterine wall four inches long was found, in the rent a piece of detached placenta; the peritoneal rent corresponded with the muscular. The edges were trimmed and closed with twelve

silk sutures; the peritoneum was united by continuous catgut; recovery followed.

Also the case of a multipara in prolonged labor, in whom podalic version and extraction were performed; search for the placenta revealed it in the abdomen, the uterus having ruptured. Laparotomy was made nine hours after rupture. The placenta was found behind the uterus, in the pelvis. The rent was in the anterior wall of the uterus; a ragged curtain of peritoneum had been stripped up anteriorly, leaving a denuded muscular area three and a half inches by two. Twelve deep muscular sutures of sterilized silk were inserted, and thirty peritoneal. The patient died of peritonitis fifty-four hours after the operation.

Reed would treat rupture of the uterus, the head presenting, by forceps delivery if easily practicable; incomplete rupture by antiseptic irrigation and rest; complete rupture by laparotomy and suture of the uterus if the uterus is not badly damaged; if it has been bruised by long, severe labor, by amputation.

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#### A CASE OF CÆSAREAN SECTION.

WINCKEL (*Centralblatt für Gynäkologie*, No. 48, 1889) describes a Cæsarean section done under difficulties. The patient had a highly deformed pelvis from osteomalacia, and had previously been delivered by craniotomy. The room in which she lay was scarcely large enough to contain her attendants, and was miserably lighted by lamps. The membranes had ruptured, and pains were severe. The pelvis was so small that no foetal part presented; the head was above the pelvic brim. The patient was laid upon a small table and chloroformed. On opening the abdomen, a plexus of veins was found on the anterior uterine wall, which bled freely when incised. The child was extracted by the feet, the uterus firmly grasped, and the foetal appendages removed. The uterus was closed with twelve buried stitches of carbolyzed silk; there was not sufficient light to attempt separate approximation of the peritoneum. The abdomen was then closed with silk, dusted with iodoform, and bandaged. A midwife resuscitated the child. Mother and child were well seven weeks after the operation.

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#### A PORRO OPERATION UPON A DWARF.

ST. BRAUN (*Przegląd Lekarski*, 1888, Nos. 2, 4, and 5) reports a Porro operation upon a dwarf having a highly contracted, rachitic pelvis. As the mother was phthisical, the operation was indicated to prevent the propagation of tuberculous children. The usual Porro operation was successfully done, and mother and child recovered. The mother was three feet ten inches in height.

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#### ABDOMINAL PREGNANCY; LAPAROTOMY; RECOVERY.

RIEDINGER (*Wiener klinische Wochenschrift*, No. 47, 1889) reports the case of a multipara aged thirty-three years, who came under observation 279 days after the cessation of menstruation, when foetal movements had ceased: intermittent hemorrhage followed. Examination disclosed an ab-

dominal tumor extending four fingers' breadth above the umbilicus obliquely toward the left. Palpation showed fluid and a hard body, over which a placental souffle was heard. Vaginal examination revealed the cervix permeable for a finger, the uterus three and one-third inches long, not plainly felt, but losing itself in a tumor in the left perimetrium. When laparotomy was made, a tumor adherent extensively to the mesentery and intestines was found, from which two quarts of brownish fluid were aspirated, and which contained a male foetus at term. Attempt to remove the placenta caused so great hemorrhage that it was left with the foetal sac; a portion of the sac adherent to the mesentery was ligated at the lower border of the wound and removed; the sac was stitched to the edges of the wound, and tamponed with iodoform gauze. The rapid contraction of the sac forced the placenta to the edge of the cavity, and three weeks after the operation half of it was cut off with scissors, and the remainder followed a week later. Complete recovery followed.

The pregnancy was thought to be tubal in the beginning, and to have ruptured at three months, becoming then abdominal.

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#### EXTRA-UTERINE PREGNANCY MISTAKEN FOR MALIGNANT OVARIAN TUMOR.

JERZYKOWSKI (*Nowiny Lekarskie*, No. 4, 1889) performed laparotomy upon a multipara who presented a hard tumor in the left side of the pelvis, extending above Poupart's ligament. Upon operation, the tumor was so closely adherent that its removal seemed impossible; the tumor seemed to be a malignant growth of the left ovary. The wound was accordingly closed. The patient's abdominal pain was greatly benefited. Three weeks afterward rectal pain led to an examination, when fluctuation was discovered, which was opened by the finger. Free evacuation of pus followed, and, shortly after, the discharge of a four months' foetus. The patient recovered.

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#### REMOVAL OF THE ENTIRE SAC OF AN EXTRA-UTERINE PREGNANCY.

SLAWIANSKY (*Centralblatt f. Gynäkologie*, No. 48, 1889) operated upon an extra-uterine foetation, foetus dead three months. The foetal sac was found extensively adherent, the vermiform appendix being included in the adhesions and removed. The left ovary and tube were removed, as hydrosalpinx was present. The right tube and ovary were left. No drainage was employed, adhesions being carefully ligated. Recovery ensued, with slight fever. The sac was one-fifth of an inch thick, composed of connective tissue with unstripped muscle fibre. The membranes were closely applied to the sac. This case is the eighth in Russia of extirpation of the sac of an extra-uterine foetation.

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#### EXTRA-UTERINE PREGNANCY, WITH THE DELIVERY OF A LIVING FŒTUS BY LAPAROTOMY.

At a recent meeting of the Obstetrical Society of Vienna, CARL BRAUN (*Centralblatt für Gynäkologie*, No. 36, 1889) reported a case of extra-uterine pregnancy in which foetal parts and amniotic fluid could be easily distin-

guished at the right of the empty uterus. Laparotomy revealed a living fœtus (weighing seven pounds) encapsulated by fibrin; no membranes could be demonstrated; the placenta was formed by anastomoses with the peritoneal vessels at the sigmoid flexure. Profuse bleeding occurred from the posterior surface of the uterus; an elastic ligature was placed about the cervix, and the peritoneum was closed behind it. After amputating the uterus, a large extra-peritoneal cavity was left where the fœtus had lain; this was tamponed with iodoform gauze. Tedious recovery without fever followed. The child perished twelve hours after birth from pneumonia, caused by the inspiration of fibrin and serous fluid.

#### RUPTURED TUBAL PREGNANCY.

SUTTON (*Lancet*, November 16, 1889) reports a case in which cessation of menstruation, collapse, and swelling of the abdomen had been symptoms. Examination revealed the uterus empty, ill-defined swelling in both iliac fossæ extending to the costal cartilages on the right side; there was slight elevation of temperature. Laparotomy disclosed a putrid blood-clot extending from the pelvis to the liver; free bleeding from the right broad ligament. The ligament was transfixed; the right tube and ovary removed; the abdomen irrigated, and a glass tube inserted for three days: recovery followed. The ovary contained a corpus luteum of pregnancy, and a rounded mass removed contained an apoplectic ovum with a fœtus of eight weeks. Sutton believes that the sudden enlargement of an apoplectic ovum frequently ruptures a tube; no extra-peritoneal hæmatocele should be attributed to ruptured tubal pregnancy, however, unless membranes, a fœtus, or both, are present. He also reported an abdominal section at which an hæmatocele, encysted in the great omentum, was removed with the tube and ovary. Rupture had occurred an inch from the abdominal end of the tube; an apoplectic ovum lay in the hæmatocele, as large as a chestnut. The patient recovered.

In discussion (*Royal Medical and Chirurgical Society*), PRIESTLEY thought that cases of pure hæmatocele generally occurred, and should be let alone unless suppuration occurred. Intra-peritoneal rupture required operation. When in doubt he would not operate.

DUNCAN had recently seen in a year twelve cases with clinical signs of tubal pregnancy which recovered without operation. He had seen a case recover from marked collapse, and eight months after a dead fœtus was removed from the abdomen. Hæmatocele was no proof of tubal pregnancy.

HERMAN considered an apoplectic ovum one which had slight bleeding into the chorion.

CULLINGWORTH had seen many hæmatocèles; in two he found by palpation a large tube. Abdominal section revealed no rupture, but in one hæmatosalpinx, in the other ruptured varicose vein. He would operate only when a large tube could be detected, and the cause of hæmatocele still remained.

WALTER reported a case of large intra-peritoneal clot reaching nearly to the umbilicus. When tapped one and a half pints of fluid escaped. A clot as large as a fist was in the bottom of the cyst; the clot was lined with chorion

in which the viscera of a six weeks fœtus were found; it was an apoplectic ovum.

In conclusion, SUTTON believed that in apoplectic ovum the effusion occurred into the decidua before the placental circulation was formed. Amniotic hemorrhage was not necessary to diagnosticate apoplectic ovum. The conditions were analogous to cerebral apoplexy. The ovum from the uterus contained a cavity with a fœtus or cord; the ovum from a tube showed a compressed amniotic cavity. Hemorrhage generally occurred into the decidua before the ovum left the tube.

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#### THE UTERINE TAMPON FOR POST-PARTUM HEMORRHAGE.

DÜHRSEN (*Berliner klinische Wochenschrift*, No. 44, 1889) alludes to seventy-nine cases of puerperal bleeding of great severity, in which the intra-uterine tampon of iodoform gauze checked hemorrhage promptly; there was no mortality: in two cases the tampon was expelled, in one after twelve hours, in the other twenty hours. Dührssen believes that this occurs rarely, and that if proper care is exercised it may never occur. The vagina should be moderately tamponned with iodoform gauze to prevent the bougie from going externally. Cases of hemorrhage should be taken at once before the patient becomes exsanguine, and the tampon promptly inserted.

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#### A CASE OF NEPHRITIS AND ECLAMPSIA, SUCCESSFULLY TREATED.

CRAMER (*Deutsche medicinische Wochenschrift*, No. 47, 1889) was called to a primipara suffering from acute nephritis, with suppression of urine, eclampsia, coma, and temperature of 104° F. The presentation was a breech. Forty-five grains of chloral were given by enema, followed by sixty grains half an hour later, with three hypodermic syringes of ether. A hot bath was given every two hours. Twelve hours later the patient was comatose, the convulsions had ceased, and the os and cervix were partly dilated. The uterus had firmly contracted and retracted, and the contraction ring was plainly felt. Delivery was imperative, to avoid uterine rupture, and the cervix was incised to the vaginal attachment on each side by shears. Delivery of a living child followed, which was not at all narcotized by the chloral given to the mother. Recovery resulted in four weeks' time.

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#### MEASLES DURING PREGNANCY FOLLOWED BY FŒTAL INFECTION.

LOMER (*Centralblatt f. Gyn.*, No. 48, 1889) reports the case of a primipara whose pregnancy was terminated five weeks before term by measles. Her living child developed characteristic measles eruption on the forehead and breast a few hours after birth. The child died four weeks after birth, from intestinal catarrh; the mother recovered.

In 11 cases collected by GAUTIER, *Annales de Gynécologie*, 1879, p. 321), 6 transmitted the disease to the fœtus. In 1 case the child escaped although it nursed the mother. Two mothers died.

## GYNECOLOGY.

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 UNDER THE CHARGE OF

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## EXFOLIATION OF THE MENSTRUAL MUCOSA.

LÖHLEIN (*Centralblatt für Gynäkologie*, October 19, 1889) prefers this expression to either "membranous dysmenorrhœa" or "exfoliative endometritis," since dysmenorrhœa is a prominent symptom in only one-half of the cases, and most observations show that there is no real inflammatory trouble. He believes that the membrane bears more of a resemblance to a product of conception than to that of inflammation.

Among three thousand gynecological cases in his private practice he noted twenty-five of so-called membranous dysmenorrhœa, which were subject to careful and extended observation. In six of these the pain was clearly due to para- or perimetritis; four were cases of abortion, and in four the menses were suppressed from cold or other causes. Two patients had acute endometritis, and chronic endometritis was frequently noted. Multiparæ usually had but slight pain, as well as nulliparæ whose cervices had been dilated; in fact, unless the cervical canal was contracted the symptoms were seldom severe; when the pain was unusually violent, marked disease of the adnexa could usually be detected. Six patients became pregnant. In only one did the phenomenon disappear permanently, though it was sometimes absent for months after thorough curetting and subsequent injections of iodine.

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 SLIGHT CYSTIC DEGENERATIONS OF THE OVARY.

PETITPIERRE (*Archiv für Gynäkologie*, Bd. xxxv. Heft 3) concludes an extended paper on the minute anatomy of the ovary with a statement of the results of his investigations on cystic degeneration. He examined twenty-three ovaries, which had been removed on account of "ovarian neuralgia or other neuroses," twenty-one of which were in a state of so-called "slight cystic degeneration." Macroscopically the tunica albuginea appeared to be thickened and the stroma of the cortical layer was hypertrophied; the primordial ova were usually small and undeveloped, but the number of growing ovisacs was relatively large. In general, slight cystic degeneration of the ovary represents general hyperplasia of the stroma with a disproportionately large and rapid increase of the glandular elements. The ova mature slowly, hence the increase in the number of ovisacs.

It is impossible in the existing state of knowledge to trace any direct connection between the anatomical condition and the symptoms noted at the bedside; however, it may be affirmed that, although their Graafian vesicles may present a normal structure, such ovaries cannot be regarded as exactly normal, as is shown clinically by the fact that they are usually extirpated for the relief of severe symptoms, and that they are found relatively more frequently at the operating-table than in the dead-house.

[The writer has omitted an important link in his chain of reasoning, *i. e.*, he has not shown how or why an ovary in a condition of slight cystic de-



generation should give rise to pain sufficient to justify its removal, and at what stage of follicular enlargement the surgeon should decide from a gross inspection of a suspicious gland that it is functionally useless. As yet the microscope has thrown no clear light on this obscure subject.—ED.]

BULINS (*Archiv für Gynäkologie*, Bd. xxxv. Heft 3) describes the macroscopical appearance of a so-called "cystic ovary." He thinks that the condition represents either an arrest of development of the ovisacs, or an abnormal retrograde metamorphosis of the same—in fact, a process of "sterilization;" few of the ovisacs mature, as shown by the rare occurrence of corpora lutea in such ovaries. In the slighter forms there is no change in the stroma. The writer believes that cystic degeneration results from excessive sexual excitement, and from the presence of perioöphoritis, salpingitis, and ovarian and uterine tumors.

#### THE ETIOLOGY OF PARAMETRITIS.

BUMM (*Archiv für Gynäkologie*, Bd. xxxv. Heft 3) has made some important observations with the view of determining the true cause of so-called cellulitis. When pus is present it is much easier to decide this question than in the case of a simple serous exudation.

Cellulitis is usually divided into the infectious and the traumatic varieties, but the writer punctured a supposed traumatic exudation in five cases, two of which he found to be of gonorrhœal origin, while the fluid from the other three contained streptococci. Parametritis was induced artificially in rabbits, and in every instance streptococci were found in the exudation, even when there was no pus, hence the legitimate inference that *there is no purely traumatic cellulitis*. Whenever streptococci are present *there must be infection from without*; they are never found in the healthy genital secretions. Auto-infection is extremely improbable.

[The extreme importance of this unassuming paper is not at first appreciated. If the writer's deductions are correct, he has at length thrown some light upon a subject in which there has been more theorizing than on any other in the whole range of medicine—the nature and origin of pelvic cellulitis. As the result of his studies, he reaches the same conclusion as many thoughtful gynecologists, that old indurations in the broad ligaments are in themselves comparatively harmless, and that the danger of exciting fresh inflammation in them by operating on the cervix uteri has been much exaggerated. As Bumm shows, where inflammation arises in the pelvic cellular tissue it is directly attributable, not to the operation, but to the operator—to *infection*, not to *traumatism*. Positive scientific facts like this accomplish more for the progress of gynecology than do the most plausible theories.—ED.]

#### VISCERAL COMPLICATIONS AS A CAUSE OF DEATH AFTER OVARIOTOMY.

HERFF (*Centralblatt für Gynäkologie*, October 19, 1889), in a paper read before the German Gynecological Society, calls attention to the fact that death may occur after ovariectomy from cardiac, pulmonary, or renal complications, referable to the prolonged administration of chloroform.

Aside from fatty degeneration and brown atrophy of the cardiac muscle, which have been noted in fatal cases, the prolonged inhalation of chloroform may cause degeneration of the same, leading to collapse after the operation. This never occurs when ether is given.

Fatal hypostatic congestion and broncho-pneumonia may occur in weak patients with diseased hearts, due solely to the inspiration of secretions from the throat. If there is preëxisting pulmonary trouble the danger is great, even when ether is used.

Fatty degeneration of the renal epithelium may result from the free use of corrosive sublimate, and albuminuria follows the prolonged inhalation of chloroform, hence the importance of restricting both drugs in the case of patients with contracted kidneys.

In the discussion which followed, Kaltenbach cited three cases in which death after ovariectomy was directly attributable to the use of chloroform, two patients having contracted kidneys, and one fatty degeneration of the heart.

Hegar and Klein recalled three cases. Fehling said that chloroform always exerted a powerful action upon the kidneys; the urine often contained albumin and casts, and fatal nephritis might be produced.

[The Editor read a paper at the last meeting of the American Gynecological Society, in which he considered at length the various visceral lesions which might cause death after ovariectomy. Herff takes a narrow view of this important question, considering it from a single standpoint. We fortunately seldom have an opportunity in this country to report fatal cases directly attributable to the use of chloroform. But it is interesting to note that the very cases in which many American surgeons regard the administration of this anæsthetic as alone justifiable (where renal disease is present) are the ones in which our German *confrères* consider it as most dangerous. Ether must still be regarded as the safest "all around" anæsthetic.—ED.]

#### EXPERIMENTAL OBSERVATIONS ON THE EXTERNAL CROSSING OF THE OVUM.

HENRICIUS (*Centralblatt für Gynäkologie*, August 3, 1889) reviews the experiments hitherto performed with the view of determining whether pregnancy can occur in an animal after one ovary has been extirpated and the opposite tube has been occluded. Parsons operated on twenty-five rabbits without result; Leopold on seven rabbits, two of whom subsequently became pregnant. Küstner was unsuccessful in the case of guinea-pigs, and Kirceff operated on thirty rabbits and five sheep with only one success. Bruzzi was successful in one operation out of seven. The writer removed one ovary in eight rabbits and tied the opposite tube, pregnancy following in two cases, though in one copulation did not take place till four months after the operation. He infers that the ovum may enter the opposite tube, though this occurs very rarely.

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AN INVESTIGATION INTO THE ETIOLOGY OF PHTHISIS.

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THIS investigation is undertaken with the object of working out the morbid changes in the lungs which result in the formation of cavities, and endeavoring to prove the causal relation of the bacillus tuberculosis thereto. Also by inoculation experiments on animals to find out whether all forms of phthisis reproduce themselves in the same manner; the ape, as being the animal most nearly allied to man, being taken for this purpose. At the same time the clinical histories, physical signs, and symptoms of the cases from which material is taken are fully and carefully investigated to find out if different lesions in the lungs can be diagnosed thereby. A careful series of experiments are being carried on with inoculated animals to prove the value of various therapeutical measures, special apparatus and heated isolated rooms being arranged for that purpose.

I.

ON THE HISTOLOGY OF TUBERCLE.

BY HENEAGE GIBBES, M.D.

On reading the vast amount of work that has already been done on this subject it would seem that any further investigation was uncalled for; but the discovery of Koch's tubercle bacillus has produced a new

definition of tuberculosis, and now everything in the shape of lung or other disease that contains the tubercle bacillus is considered to be tuberculosis: while the old-fashioned term pulmonary phthisis is either left out altogether from the text-books, or else is mentioned as synonymous with tuberculosis.

It would, therefore, seem imperative that the processes set up by this bacillus and its relation to them should be thoroughly understood before this theory should be accepted. Such is, however, very far from being the case, as a perusal of some of the latest works on pathology will show.

It has always been a matter of wonder to me that this theory of Koch's should at once have met with almost universal acceptance with scarcely any corroborative evidence. As a proof that this is the case, in a paper by Dr. Harold C. Ernst, in *THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES* for November, 1889, the following statement is made:

"The work showing the etiological relationship of the bacillus of tuberculosis to the disease was, to all intents and purposes, complete upon the publication of Koch's monograph upon the subject. Nothing more in the way of proof was actually needed, and, indeed, very little has been furnished."

Further on he states:

"What is accepted the scientific world over, that in the organism described by Koch we have the specific cause of this pathological change, and that without its activity we do not have tuberculosis in any form or under any conditions."

Dr. J. F. Payne, in his *Manual of General Pathology*, published in 1888, says in describing tuberculosis:

"Tuberculosis is the name given to the disease caused by the introduction of tubercle bacilli into the body."

Further on he gives the heading:

"Tuberculosis of the Lungs, or Pulmonary Phthisis."

Koch's discovery came at a very opportune time; this bacillus was the solution of a difficulty, and numbers of men at once accepted the new theory. The practical work in demonstrating the tubercle bacillus in sputum was also easy of accomplishment and enabled many men to get their names in print who otherwise would have languished in well-deserved obscurity.

Having thus the cause of the disease established, it would seem that nothing difficult would be found in describing the effects produced. From the earliest observations made on tuberculosis and phthisis down to those of the present day more than one form of lesion has been observed in the lungs, and from these differences arose the variety of opinion as to the unity or duality of phthisis, which has been now settled by the discovery of the bacillus tuberculosis.

The views of the older writers are so well known it is needless to recapitulate them here. Taking, therefore, the statements of writers of the present time, that is, since the discovery of Koch's bacillus, we will see how the unity of phthisis is established by them, for if *B. tuberculosis* is the virus of tuberculosis the unity of phthisis is a foregone conclusion. On turning, however, to various authorities on tuberculosis, we find that they all are obliged to describe a number of definite lesions in the lungs. Ziegler has quite a bewildering array of pathological processes in connection with diseases of the lungs.

Austin Flint, in Pepper's *System of Medicine*, says:

"There are two distinct varieties of morbid products in cases of phthisis, namely, the miliary granulations and the infiltrated deposit formerly distinguished as crude tubercle."

Loomis's *Practical Medicine*, 1889, says:

"Recent investigations have established a pathological unity in the morbid processes of pulmonary phthisis.

While all forms of tubercular disease must be considered identical in their origin, and the primary lesion in each to be tubercle, the wide variations in the morbid changes which are found in the lungs of phthisical subjects, *as well as the marked differences in their clinical history*,<sup>1</sup> compel us to recognize two distinct varieties of pulmonary tuberculosis."

Bristowe, in the sixth edition of his *Practice of Medicine*, makes a statement to the same effect.

Fagge, in the second edition of his *Principles and Practice of Medicine*, edited by Dr. Pye-Smith, states that all cases of phthisis are essentially of the same character; and further, that pneumonic phthisis is equivalent to phthisis which has advanced quickly, fibroid phthisis to one of which the course has been slow. He further states that it is necessary, both from a clinical and pathological point of view, to distinguish acute miliary tuberculosis from phthisis.

Dr. Payne says:

"Tuberculosis of the lungs or pulmonary phthisis is by far the most common disease. Here we recognize two forms distinguished by the manner in which the poison is introduced and distributed through the organs."

These references, which might be multiplied indefinitely, will serve to show that although the tubercle bacillus of Koch is recognized by all these writers as being the virus of the disease, yet they are unable to reconcile it with their clinical experience.

Nearly all writers vary in the classification they adopt of the varieties of phthisis; some include acute miliary tuberculosis, others leave it out; the same with fibroid phthisis. Dr. Payne's view that the lesion varies with its method of introduction is worth further notice, and we will see on what observations he founds his views. He divides tuberculosis into

<sup>1</sup> The italics are mine.—H. G.

the catarrhal and infective forms of phthisis. The catarrhal form, he states, occurs when the disease has entered the lungs through the respiratory channels; the infective, when it has followed the channels of the circulation, sanguineous or lymphatic. The infective form, he further states, agrees in its distribution with acute miliary tuberculosis. He also states, "the forms may be combined, the latter being developed out of the former or even *vice versa*." In describing these forms he puts them under two headings.

"1. *Pulmonary Phthisis*.—In most of the cases it is clear that the poison enters the organ by the respiratory channels.

"The process appears to be that the bacilli settle down in some portion of lung where there is little movement and the expulsive action of the ciliated epithelium of the bronchi is less energetic. Such a spot is clearly the apex, or it may be in spots where previously existing inflammation favors the lodgement and growth of the bacillus. Within the alveoli and possibly in the smallest bronchioles they set up changes resulting in the formation of a miliary tubercle. It is now clearly established that the tubercle is formed at first inside the alveoli, though at one time it was thought to belong to the interstitial structure of the lung.

"Thus we have the commonest lesion of phthisis which makes up a great part of the morbid changes in most phthisical lungs, viz, caseous or scrofulous broncho-pneumonia, or catarrhal pneumonia.

"This process may occur alone or may be accompanied by miliary tubercles.

"Caseous pneumonia arises from inhalation of the virus into the alveoli, while miliary tuberculosis, etc., are due to infection by bloodvessels and lymph channels (Watson Cheyne). Caseous pneumonia, *with or without visible tubercles*, may spread over a large part of the lungs and soon undergoes necrosis; this causes softening or breaking down, the lung tissue is thus destroyed.

"2. *Infective Tuberculosis of the Lung*.—If the tubercular virus be distributed by the pulmonary arterial system it becomes arrested at various places in the capillaries and a number of small tubercular foci are formed which may be compared to minute embolisms. This constitutes the process known as acute miliary tuberculosis of the lung.

"It may occur quite independently of any broncho-pneumonia or inflammatory process such as above described, which is proved by the fact that cases occur where the whole lung tissue is crepitant and normal but for the miliary tubercles, and where during life the physical signs of lung disease are absent."

I have quoted fully from Dr. Payne, as his is the most lucid explanation of the processes he has described, and now I will analyze his description and see how it will agree with the histology of tubercle as I am about to define it.

In the first place, his description of pulmonary phthisis is exactly what was always considered to be correct, a capillary bronchitis extending into and involving portions of the lung substance. He thinks the bacilli settle down where there is little movement and where the action of the cilia is less energetic; this, he says, is clearly the apex, but he gives no data on which his opinion is founded. Now, what proof have we that there is less movement in the apex of the lungs than in other parts of the organ? The statement has frequently been made that the air is not so readily changed

in the upper part of the lungs. I can see no foundation for this statement. Let anyone carefully examine a man in perfect health with erect carriage and he will see that all parts of the lung expand equally both in ordinary and forced inspiration, and I think most modern practical, not theoretical, physiologists will bear me out in this. Again, in women who wear corsets the costal type of respiration shows that the upper portion of the lungs is doing even more than its share of work; and are these women any more free from phthisis than men?

When the disease is established the patient stoops, and then the action of the upper part of the lung is impaired, but why? Because the disease has caused the stoop and consequent relaxation of the muscles' action on the upper part of the lung. As to the statement that the action of the cilia is less energetic, this is pure theory without a shadow of proof. He also says there may be spots of previously existing inflammation for the bacilli to lodge in. This seems an extraordinary statement. How are these inflammatory spots brought about that are ready for the bacillus to drop into and develop, and what has caused them? Why should they not be the disease itself producing a change in the tissues making a favorable nidus for these bacilli to grow in? He then states that changes take place within the alveoli resulting in the formation of a miliary tubercle. He has before described a miliary tubercle as composed of a fine reticular stroma and giant cells. He states that the tubercle is formed inside the alveolus, and informs us that "this is already established;" by whom he does not say.

We have, then, an inflammatory condition beginning in the bronchi and extending into the lungs, where it results in the formation of miliary tubercles. He then goes on further to state that the tubercle proper becomes mingled with the products of ordinary inflammation, so as to produce the appearance of broncho-pneumonia, and then says the process may occur alone or may be accompanied by miliary tubercles. This statement is so involved that it is difficult to know what is meant.

There are assumptions made here of which we are given no proof, and yet on them rests the foundation for the bacillary origin of the disease. Dr. Payne places after some of the statements he has made the name of Mr. Watson Cheyne, and we may infer that he has taken Mr. Cheyne's work to corroborate the theories he advances. It is therefore necessary to look up Mr. Cheyne's work to see how it does this.

In the London *Practitioner*, for April, 1883, Mr. Cheyne published a paper in which he describes the investigations he had made, and I find his work often quoted as entirely corroborating Koch's theory in regard to the bacillary origin of phthisis. Among many other positive statements he makes is this:

"In man we have the disease termed acute miliary tuberculosis, which resembles in every respect—histological structure, tendencies, and presence of

bacilli—the acute tuberculosis produced in animals by the inoculation of tuberculous material.”

Numerous observers have disproved this, and I shall have occasion to allude to it again.

Mr. Watson Cheyne in the same paper describes and figures “a body which was apparently a parasite.” It was pointed out to him by competent histologists at one of the societies where he showed the specimens from which this drawing was made, that what he thought a parasite was really a striped muscle fibre which occurs normally in the pulmonary vein of rabbits. Such faulty observation does not inspire reliance in his deductions.

Anyone reading the various descriptions of the lesions in tuberculosis cannot fail to see that the endeavor to make them fit into the bacillary view has caused a twisting of facts, an assumption of many things as proved which are not based on reliable work, and the adoption of theories without proof even attempted, so that we have now a situation where numerous writers accept a virus for a disease, the lesions of which they cannot even all describe alike, to say nothing of the origin of these lesions: some saying that tubercle is of connective tissue origin, others of epithelial; some saying the bacilli are always found in the giant cells, others that they have never found them there; while, as a climax, Watson Cheyne describes the formation of giant cells from epithelial cells and then figures the formation of a capillary bloodvessel from a giant cell.

It seems to me that this diversity of opinion as to the lesions in tuberculosis would be removed if the structure of a tubercle were well defined and its connection with the disease established. Most of the writers quoted describe two forms of tubercle, and say they occur in the same lung indiscriminately; and Dr. Payne even goes so far as to say the one may develop out of the other, or *vice versa*; and here lies the crucial point: if this is the case, the unity of phthisis is an established fact; but if these two forms *do not occur* in the same lung, then there are different lesions resulting in the formation of cavities, and it follows that the bacillus tuberculosis does not at one time form one lesion and at another time a totally different one. In other words, it is highly improbable that the bacillus is the virus of *both* diseases. Numerous descriptions have been written of the histology of tubercle by E. Wagner, Friedländer, and others, while Buhl and Hering have described acute miliary tuberculosis as disseminated catarrhal pneumonia. I shall not, however, refer further to their work, but take that of Klein in his *Anatomy of the Lymphatic System*, vol. ii., as here he describes the appearances found in the lungs of seven children that died of acute miliary tuberculosis. I have made thousands of sections of these very lungs and can speak positively of the appearance presented in them. All the cases except one had been diag-



nosed as acute miliary tuberculosis; in the one case the diagnosis was uncertain whether enteric fever or tuberculosis.

Klein found that the histological appearances in two of the cases differed entirely from the other five. The two cases he describes as follows:

"The abnormal masses (tubercles) correspond to groups of alveoli and infundibula, being filled with and distended by a fibrinous material that contains granules and small cells. . . . The structure of the alveolar wall is hardly distinguishable and its capillary bloodvessels not permeable, as is shown by the fact that in well-injected (artificially) specimens the injection does not extend into these capillaries . . . all through both lungs the nodules show the same histological characters. There was no trace of giant cells anywhere."

His description of the remaining five cases is too long to quote, but it amounts to this, that these differ entirely from the two first described, and the tubercles consisted of a reticular stroma containing one or more giant cells, while in the centre of the larger tubercles was a necrosed area. I have now before me a very large number of mounted sections from these seven cases, and also from a large number of cases I have obtained from time to time. They all can be divided absolutely into two classes: reticular and caseous tubercles.

I cannot agree with the conclusion he draws that the reticular form is only a later stage of the caseous, for two reasons: 1, in the large number of sections I have examined some would show a transition stage from caseous to reticular—this is certainly not the case; 2, in support of this view he supposes that the fibrinous material he describes in the centre of a caseous tubercle may be replaced by groups of cells or by a giant cell. I have in many sections the very first commencement of the formation of a reticular tubercle, and the process is this:

1. A number of round cells are found massed together in a small area of the lung tissue.
2. These cells assume a spindle shape, and at the same time the first formation of a giant-cell appears. At the same time new capillary bloodvessels are formed, and then the reticular tissue from the spindle-cells, or these processes may go on together. The tubercle now presents the appearance of a fibroid tissue with one or more giant cells in it, having patent bloodvessels containing Berlin blue injection material. I have always injected these lungs when practicable. As the tubercle grows, the fibroid tissue increases and assumes a more or less circular form and grows from within, so that giant cells are now in the periphery; after a time the centre necroses, I suppose from the contraction of the fibroid tissue cutting off the blood supply—at any rate, the injection will only now penetrate the reticular tissue. Several of these tubercles develop side by side until a number are fused together, and still some can be found in the mass in all stages of development. These two forms of tubercle are indistinguishable to the naked eye, and are distributed through all parts of the lungs, but never together in the same lung.

From the above description it will be seen that the two forms of tubercle described agree entirely with those of Payne, only they do not occur in the same lung, nor are they capable of transformation the one into the other, or *vice versa*.

There now remains the relation of the tubercle bacillus to these two forms. On December 4, 1882, I read a paper at the Medical Society of London, in which I described the two forms of tubercle, and pointed out that in the caseous form every tubercle contained large numbers of bacilli; while in many cases of the reticular form they were absent altogether, and when present only existed in very small numbers and then isolated amongst the reticular tissue. I have since then carefully examined every case of acute miliary tuberculosis I have been able to obtain—and they are not a few—and I have found the same state of things in all of them. When the caseous form exists there will be the bacilli in the smallest tubercles, but I have never been able to find any in a commencing tubercle of the reticular form in its earliest stage. I have also never seen a bacillus in a giant-cell in the human lung. Hamilton, in the *Hand-book of Pathology*, vol. i., states that the giant-cells sometimes contain the tubercle bacillus, although rarely in man. Further on, he states there are many tubercles in which not a vestige of the bacillus can be seen. Dr. Payne says:

“In specimens from the human subject the giant cells very rarely contain bacilli. The writer has never seen them in that situation, and observers of much larger experience have confirmed this negative result. . . . The bacilli are, on the other hand; very numerous in the caseous masses of human phthisis.”

In speaking of tubercle Dr. Payne says:

“The structure known as acute miliary tubercle is now regarded as the essential type of the disease.”

I have now given a description of the histology of tubercle based on the examination of thousands of sections taken from a large number of cases of this disease. From the information gained I feel justified in considering that the disease, acute miliary tuberculosis, is of two kinds, as shown by the difference in the structure of the tubercles and in the relation of the tubercle bacillus to them; the one being an acute inflammatory process localized throughout the lungs, the other a formation akin to granulation tissue, also localized, and from the mode of its growth prone to produce necrosis in the centre of the tubercles. What the relation of the tubercle bacillus is to these two forms remains to be proved.

#### ACUTE PHTHISIS.

Many pathologists complain that the physician uses a different classification to theirs, and that he distinguishes varieties of phthisis at the

bedside which the pathologist does not recognize. And no wonder, when the pathologist is striving to make these varieties all fit into one theory as to their causation. A large number of clinicians of great experience will not admit that all forms of lung cavities come from one and the same cause; they know the physical signs, symptoms, or course of the disease will not allow this. In acute phthisis, either the phthisis florida of the German writers or that of a more chronic form, it can be shown that there are no tubercular formations such as have been described under miliary tuberculosis—I mean in those cases where there has been catarrhal pneumonia causing consolidation, which consolidation has not cleared up but has gone on to caseation and subsequent breaking-down, thus forming a cavity.

#### TUBERCULOSIS.

On the other hand, in many cases where there are large cavities in the lungs, these are clearly seen to be caused by the breaking-down of tubercular masses, as in portions of the lung remaining the reticular tissue and giant-cells are plainly seen. From this I conclude that there are two distinct processes which form consolidations in the lungs and then break down, forming cavities; but these processes do not occur indiscriminately in the same lung. To prove this, Dr. G. C. Huber, of this University, made an investigation in my laboratory of the lungs taken from cases of phthisis. He embodied the results in a paper read before the State Medical Society at Kalamazoo in May last, and the paper was published in the *Medical News* of July 8, 1889.

He found 21 cases in all; 5 of these were fibroid phthisis, and were, therefore, discarded; of the remaining 16, sections were cut from various parts and the results were always the same—they were either cases of tuberculosis or of caseous phthisis, and the two forms were never mixed. I have examined an enormous number of lungs from phthisical cases during the last seven years, and my experience has always been the same.

The relation of the tubercle bacillus to these forms, also, is different; in the caseous form there are always large numbers of them, while in tuberculosis, where there is caseation and breaking down, they also occur, but not in anything like the number they do in the caseous form. I have also examined several cases of tuberculosis with large cavities without finding a single bacillus in several hundred sections. This is only what Koch himself admits, he having also found cases where there were no bacilli. The above are facts which can easily be verified by an examination of my specimens, and surely in the face of them no conscientious man can say that the tubercle bacillus is absolutely proved to be the virus of phthisis.

## FIBROID PHTHISIS.

By this I mean a condition where the product of some acute inflammation, such as croupous pneumonia, has not cleared up, but has remained behind in patches; these have undergone various changes, but generally retain their characteristic appearance so far as to enable one to understand the primary change.

In my experience croupous pneumonia is the commonest form which produces a fibroid change. The unabsorbed residue sets up an irritation which is followed by increase of the normal fibrous tissue until large bands of this are seen in parts of the lungs; the process is a very chronic one, and is generally associated with much pigmentation and anthracosis. In these cases, at any rate in some of them, the consolidated material after a time caseates and breaks down, and in this can be found the tubercle bacilli. I have noticed one peculiarity in connection with this disease; that is, the formation of large giant-cells at the edges of the consolidation together with fibroid tissue resembling tubercles. This was of quite recent date and probably corresponded to the breaking down of the consolidation. In miners' and other phthisis caused by long-continued irritation the process is essentially the same—it results in the formation of dense fibrous tissue; the breaking down in these cases seems to be independent of the original disease. Of what is called true interstitial pneumonia I have no experience, never having seen a case; in fact, I rather doubt its existence.

I have already stated Mr. Cheyne's views as to the identity of the tubercles produced by inoculation in animals with those occurring spontaneously in the human subject. That these views are incorrect is absolutely certain; there is no formation of a reticular nature such as we find in a true miliary tubercle. In animals the inoculation produces nodular inflammatory masses with, in some cases, multinucleated cells; these masses often caseate, but do not generally break down and form cavities as in the human subject. I have found that there is a difference in the resulting nodule according to whether the material used for inoculation is taken from a case of caseous phthisis or from one of tuberculosis, and this difference is carried on to other animals inoculated from the first. I have not, however, been able yet to get sufficient data on this subject, from the great difficulty there is in this country in obtaining post-mortem examinations. Another point worthy of notice is the absence of the tubercle bacillus from the commencing nodules produced by inoculation. In all my numerous experiments on animals I have never been able to find the bacillus in the very beginning of the nodular formation; it does not occur until the nodule becomes caseous. This differs entirely from the process in leprosy, where in the liver the change

can be seen where only two or three cells are affected, and there invariably are several bacilli. A great deal of work has yet to be done before this interesting question is finally settled.

## THE PATHOLOGICAL ANATOMY AND THE MODE OF DEVELOPMENT OF MITRAL STENOSIS IN CHILDREN.

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It can hardly be urged that Science has spoken her last word concerning mitral stenosis. Before the memoir of M. Fauvel, in 1843, the condition was probably never differentiated from mitral regurgitation; and it is only since 1862, when Dr. W. T. Gairdner, of Glasgow, described the physical signs with admirable precision, that the study of a sufficient number of cases could present the two affections in contrast. We may now affirm that, although obstruction at the left auriculo-ventricular aperture and regurgitation through that aperture exist in a majority of cases, there are well-defined differences between mitral stenosis, with or without regurgitation, and mitral regurgitation without stenosis—differences in the diagnostic signs, differences in the consecutive changes in the heart, differences in the mode of origin, differences in the clinical history, and differences in the indications for treatment. Good observers, however, are not in accord as to the interpretation of the signs met with in the clinical study of the affection, and it cannot be superfluous to attempt to obtain a light to elucidate these and other pathological problems from all available sources. I propose to consider a series of cases occurring in children only of twelve years of age and under.

Systematic books on diseases of children treat mitral stenosis very briefly or incidentally. In the analysis of cases hitherto published very few cases occurring in children are quoted. Yet Dr. Cheadle has lately said:

“Mitral stenosis is in its origin especially a lesion of childhood and early life. I find 33 cases with presystolic murmur and 24 with reduplicated second sound, out of 273 cases of organic heart disease in children of which I have accurate record. The youngest were two boys of four.”<sup>1</sup>

I proposes to analyze forty cases in which the physical signs indicated mitral stenosis, and nineteen records of post-mortem examination. My method will be simply deductive and not controversial.

<sup>1</sup> Harveian Lectures on the Various Manifestations of the Rheumatic State in Childhood and Early Life. London, 1889, p. 109.

I. PATHOLOGICAL ANATOMY.—The cases may be conveniently divided into two classes: (1) Those manifesting slight obstruction at the auricular outlet; such may also exemplify the *early* stage of the affection. (2) Those in which the obstruction is permanent and more or less extreme.

In the first of these classes were ten cases. The slightest form of obstruction between auricle and ventricle is afforded by a ring of vegetations around the auriculo-ventricular aperture on its auricular aspect. These vegetations may be friable and easily detached, or firmly fixed upon the endocardial surface with no fibrin adhering to them. The fibrous structures subjacent to the vegetations are found to be firmer than normal and form a thickened ring. The thickening may extend to the curtains of the mitral valve and to the chordæ tendineæ. In five of these cases the right ventricle was considerably dilated, and in one the left auricle greatly hypertrophied. In two children of ten years of age the weight of the heart was much above the normal, viz., eight ounces in one and twelve ounces in the other.

In one instance there was an association with congenital anomaly—the aorta arising from the right ventricle and there being a communication between the ventricles. In this case the vegetations of endocarditis were found upon the endocardium of the left auricle, and encircling the mitral orifice. One case was that of a baby two months old; there was a ring of granulations of endocarditis, and the mitral valve was thickened. Of the other cases, two were seven and the remainder ten years of age.

It may be contended that the appearances in these cases do not justify the conclusion that they would eventually become instances of permanent stenosis. This contention is probably quite justifiable. In some the vegetations may disappear and, the thickened structures becoming smooth, no disturbance of the dynamic conditions within the cavities may result. In others the ventricle may become dilated, and the consequence may be regurgitation and not stenosis. The cases are cited, however, to show that, during its existence, the ring of vegetation constitutes an obstruction to the blood-flow from auricle to ventricle, and to point to the probability that starting from the endocardium, in the neighborhood of the vegetations, the process of thickening involves the curtains of the valve and the fibrous structures to the production of the permanent form of stenosis, which we shall now consider.

The fully developed form of stenosis is illustrated by nine cases. In all except one the mitral aperture was of “funnel” form—the exception was the “buttonhole” variety.

In the less-marked instances of the funnel mitral, the curtains of the valve were united at their peripheral portions; they were thick; the thickening involved the chordæ tendineæ, which were shortened. The

endocardium lining the left ventricle was thickened, In two instances this thickening reached up to, and involved, the aortic semilunar valves, but these were not rendered incompetent.

In a case recorded by the late Dr. Hayden, the orifice in the funnel form of mitral stenosis (in a boy of ten years of age) was reduced to the size of the barrel of a goose-quill. In another case (a boy of seven), the orifice was of buttonhole form and admitted the point of the index-finger with some difficulty; "it was bounded by the valve-segments, which were smooth and thick on the edges, being elsewhere fused into an elliptical curtain. To the anterior and right portion of this curtain a mass of solid fibrin was attached."<sup>1</sup> In one of my cases, a girl of eleven, the mitral curtains were extremely thick and presented the characters of cartilage.

The cases show that the funnel form of constriction of the mitral orifice in children is much more common than the buttonhole, the proportion being eight to one. This contrasts strongly with the condition as observed in adults. In 62 post-mortem examinations recorded by the late Drs. Fagge and Hayden, only 3 presented the funnel form. Dr. Fagge found 46 examples of the buttonhole to 1 of the funnel. My own records of post-mortem examination in mitral stenosis at all ages are shown in the following table:

#### ANALYSIS OF PATHOLOGICAL APPEARANCES IN FORTY CASES OF MITRAL STENOSIS AT ALL AGES.

##### I. *Condition of Mitral Aperture.*

Buttonhole (slit, chink, or crescent)	. . . . .	19 cases.
Circular (funnel-shaped)	. . . . .	15 "
Irregular	. . . . .	6 "

##### II. *Condition of Left Auricle.*

Dilatation and hypertrophy	. . . . .	10 cases.
Hypertrophy	. . . . .	3 "
Dilatation (extreme dilatation in 7)	. . . . .	18 "

##### III. *Condition of Left Ventricle.*

Normal (or very slight hypertrophy)	. . . . .	12 cases.
Cavity noted small	. . . . .	3 "
Wall noted thin	. . . . .	1 "
Hypertrophy	. . . . .	9 "
Dilation (in 1 case slight dilatation only)	. . . . .	5 "
Dilatation and hypertrophy	. . . . .	3 "

There were probable signs of some dilatation and hypertrophy of the *right* chambers in all the cases; in many the dilatation was extreme.

To return to the appearances in the cases of children: the left auricle

<sup>1</sup> Diseases of Heart and Aorta, Dublin, 1875, pp. 942 and 944.

was dilated in 5, and hypertrophied in 6 instances. In one of my cases, a boy of nine, the muscular wall was a quarter of an inch in thickness in its thickest portion, and one-eighth of an inch in its thinnest. The muscular hypertrophy is greatest in the auricular appendix. The auricle, therefore, may attain the proportions of the right ventricle of an adult. This is an important point to consider in reference to the question of the adequacy of the auricle to accomplish a powerful injection of the ventricle. I may here say that in 4 of my 40 cases clinically examined an impulse was found in the third left interspace, demonstrably presystolic in time, and in all probability due to the systole of the left auricle. Cardiographic evidence also shows that in some cases the elevation due to the auricular systole not only attains a magnitude and extent many times the normal, but also contributes to the general rise of the apex which is completed by the ventricular systole.

The left ventricle was in 2 cases especially noted as small, and in 2 the aorta was less in calibre than the normal.

The right ventricle was very notably dilated in 9 cases, and in 3 the whole heart was greatly enlarged. In some instances the enlarged right cavities and left auricle stood out in strong contrast with the moderate or small dimensions of the left ventricle. In cases with general enlargement of the heart there was association with pericarditis.

The pericardium was adherent in 10 cases, in 9 firmly and extensively; in 1 the adhesion was limited. Endocarditis was evident in 12 cases.

In only one case was there any association with congenital anomaly, the aorta arising from the right ventricle and the interventricular septum being perforate. In this case there was no malformation at the mitral orifice, but the granulations of endocarditis on the mitral curtains and within the left auricle were observed. The late Dr. Peacock pointed out that malformations of the heart might superinduce endocarditis. In a case described by Ayrolles,<sup>1</sup> that died ten days after birth, there was marked stenosis; but in this also there were observed numerous endocarditic vegetations. No doubt the disease producing the stenosis arose and progressed during intra-uterine life. The right chambers were found to be greatly enlarged.

In another of my cases, two months old, the mitral valve was thickened with numerous granulations about its edges. Dr. Goodhart<sup>2</sup> has recorded a stenosed mitral aperture admitting one finger, in a girl of five and a half years. The ages in all the other cases of marked stenosis I have noted were seven, nine, ten (two cases), and eleven years.

<sup>1</sup> *Revue Mensuelle des Maladies de l'Enfance*, 1885.

<sup>2</sup> *Diseases of Children*, p. 531



The post-mortem evidence I have adduced is, necessarily, not very extensive, but yet, I think, is sufficient to warrant certain conclusions :

1. Mitral stenosis is not a congenital formation. Good observers have described cases as those of "congenital mitral stenosis." The late Dr. Peacock considered that some of the so-called cases of "buttonhole" mitral were probably of congenital origin.<sup>1</sup> I am not aware of a single recorded case, however, in children wherein a stenosed mitral orifice was observed apart from endocarditis. The most recent article on congenital cardiac affections in children with which I am acquainted is that by Dr. William Osler in Keating's *Cyclopædia of Diseases of Children*.<sup>2</sup> Stenosis of the *tricuspid* orifice with thickening and adhesion of the valve-segments is there figured. Dr. Osler adds :

"Atresia of the orifice may result from a developmental anomaly in which there may be no appearance of valvular mechanism, a condition invariably associated with other profound disturbances. Obliteration of the orifice by foetal endocarditis is more common, and can be recognized by the marked changes in the endocardium. Sometimes, however, it is a difficult matter to determine which factor has prevailed."

As regards the *mitral* orifice, though it is said that anomalies are occasionally met with—*e. g.*, imperfect differentiation of the segments, increase in the number of curtains to three—no instance of a membranous obstruction of the orifice is adduced.

If mitral stenosis were a congenital malformation, it would probably be observed in cases of congenital cyanosis ; such is not the fact. Nor, as I have said, is it met with in cases of congenital anomaly, except as a result of foetal endocarditis.

2. Mitral stenosis is intimately associated with endocarditis. I have just adduced instances of the obstruction associated with endocarditis in intra-uterine life. These, however, are very rare. Constriction of the mitral orifice is scarcely ever met with until after the age of five years. In every one of the nineteen cases I have cited there was found to be an association with endocarditis or pericarditis, or with both these affections combined. It is not difficult to realize that the membranous funnel, so smooth, even, and regular in its conformation that it has suggested the probability of a congenital error of development, is the result of a slow process of welding and thickening of the mitral curtains ; the fluid pressure both on the auricular and ventricular sides occasioned by the rhythmic movements of the heart explaining the apparent symmetry which in some instances it presents.

II. CLINICAL EVIDENCE CONCERNING ETIOLOGY.—The pathological evidence which we have just considered indicates a very marked association between mitral stenosis and the changes in the endocardium and pericardium which are observed in rheumatism. Clinical observation

<sup>1</sup> Quain's Dictionary of Medicine, p. 614.

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<sup>2</sup> Philadelphia, 1889, p. 757.

abundantly confirms this association. Grouping the cases which had manifested acute and subacute rheumatism with those in which scarlatina had been an antecedent, those manifesting some of the very slight signs of the rheumatic state in the child and those presenting a family predisposition to rheumatism, I find that 26 of my 40 cases (65 per cent.) might be deemed rheumatic. Dr. Cheadle found, putting out of the question family history, a personal history of rheumatism in 44 out of 57 cases (79 per cent.). Admitting that there is evidence of antecedent or concurrent rheumatism in the great majority of cases, we are, nevertheless, constrained from clinical experience to conclude that a very small minority present no obvious manifestations whatever of the rheumatic state. In such case the affection is usually brought under our notice in one of two ways: either (*a*) there are signs of wasting and long-continued malnutrition; or (*b*) there is a sudden crisis referable to a lesion of the nervous system.

As an example of the first mode, I may take the case of

Elizabeth M., aged nine, whose general appearance and condition suggested tuberculosis. She wasted rapidly, and manifested night-sweats. The signs were a typical presystolic murmur with sharp, loud impulse besides those of considerable cardiac hypertrophy.

Another example is that of

F. F., a boy of twelve, who had manifested no sign of rheumatism, but had been the subject of "icterus neonatorum." His complaint had always been abdominal. He manifested a rattling presystolic murmur occupying the whole period of diastole, and abruptly terminated by a sharp and sudden first sound.

The following are examples of the second mode:

Amy F., aged ten, had never suffered from rheumatism, but was markedly anæmic; she became suddenly hemiplegic on the right side. Oedema and ascites supervened. At the autopsy, the mitral orifice was found contracted in moderate degree, and the endocardium rough. All the other valves were healthy, but the pericardium was adherent.

William G. L., at the age of three and a half, was seized with a fit, was unconscious for twenty minutes, and was thought by his relatives to be dead. Nine months afterward he became choreic, and at the age of five was in the hospital with a well-marked attack of chorea. He manifested no sign or history of rheumatism. He presented a pronounced presystolic murmur and thrill.

Elizabeth W. commenced to have epileptic convulsions at the age of five; these recurred every three or four weeks. She was under observation in the hospital at the age of ten, and epilepsy was well marked. A low-pitched, short presystolic murmur was heard internal to the apex. No rheumatism, nor family tendency thereto.

The late Dr. Hayden recorded the case of a boy, aged seven, pale and emaciated, who presented a bulging præcordium with presystolic murmur and thrill. There had been no sign of rheumatism. The boy was suddenly seized with right hemiplegia and aphasia. The autopsy disclosed buttonhole stenosis of the mitral, a mass of solid fibrin being attached to

a portion of the curtain. The anterior and middle cerebral arteries of the left side were plugged to distention with particles of solid fibrin evidently derived from the mass within the heart.

In the 40 cases I have analyzed there were 9 that manifested chorea; 2 of these were right and 2 left hemichorea. With the exception of chorea, not one severe lesion of the nervous system occurred in the subjects of mitral regurgitation uncomplicated with stenosis. It is evident that the phenomena of embolism occur with far greater frequency in the subjects of mitral stenosis.

I have elsewhere given evidence from clinical observation to show that the signs of mitral stenosis may develop insidiously without any indication of rheumatism, that the condition of mitral regurgitation, as shown by physical signs, may in the course of time become changed to one of mitral stenosis, that stenosis developing insidiously may in course of time be accompanied by regurgitation.<sup>1</sup>

We have abundant evidence to prove that mitral stenosis may develop in like manner with mitral insufficiency in close relation with acute and subacute rheumatism. When we come to compare these two conditions in their relation with the intensity of the rheumatic manifestations, we may gain an insight into the precise pathogenesis of the two affections. In children who manifested well-marked acute or subacute rheumatism I found 64 cases of mitral regurgitation to 6 of mitral stenosis (proportion 10.6 to 1). In those who presented no history of rheumatic antecedents but who had had a previous attack of scarlatina or measles or both these diseases, 23 of regurgitation to 4 of stenosis (5.7 to 1) in those who showed evidence only of obscure rheumatoid pains, 8 of regurgitation to 2 of stenosis (4 to 1), and in those with no history of rheumatism nor obvious marked antecedent, 32 of regurgitation to 15 of stenosis (2.1 to 1). It seems, therefore, that the probability of stenosis occurring rather than regurgitation is the greater as the degree of rheumatic manifestation is slighter, and that in a considerable number of instances there is no *clinical* evidence of any rheumatic association at all.

Reviewing our data from the fields both of pathological anatomy and of clinical observation, I think we may conclude that the morbid process which results in constriction of the mitral orifice commences with endocarditis which, in the great majority of cases, is of the rheumatic form. It is, however, a *limited* endocarditis and the consecutive changes are comparatively slow. In the endocarditis which usually accompanies well-defined acute rheumatism the area involved in the inflammatory changes is considerable. The endocardium of the auricle and ventricle, the curtains, cords and columns of the mitral valve, and oftentimes the neighboring myocardium are infiltrated with the products of inflammation. In the later stages fibroid changes occur with shortening of the cords

<sup>1</sup> Lettsomian Lectures on Valvular Diseases of the Heart, London, 1886, p. 134, et seq.

and columns and retraction of the mitral curtains, so that regurgitation is the result. When the endocarditis is of slighter intensity and more limited the inflammatory changes chiefly involve the mitral ring or its auricular aspect: the process spreads gradually from thence to involve the curtains, cords, and columns, which slowly undergo the changes of welding together and fibrous transformation. In the great majority of cases the form of endocarditis which initiates these changes is that which we find associated with rheumatism, though the other obvious signs of the rheumatic state may be extremely slight or even non-existent.

We may admit that endocarditis is the *only* manifestation of rheumatism in exceptional cases. Instances have been recorded in which endocarditis has been extensively found in the heart of the fœtus, although the mother has presented no signs of rheumatism nor deviation from normal health.<sup>1</sup> It is possible that fœtal endocarditis may have been the initial lesion of mitral stenosis in some cases, though these must be very exceptional. It is a tenable hypothesis that endocarditis of the rheumatic form may occur without sign or symptom subsequently to birth, and may progress to the induction of mitral stenosis. Nevertheless, it cannot be held as proven that the endocarditis which leads up to this lesion is invariably of the rheumatic form. It is at least possible that a form of endocarditis, sometimes met with in cases of chorea, where the granulations are not friable and not associated with inflammatory infiltrations, but are firmly adherent and seem like fibrous outgrowths of the endocardium, may have its origin apart from rheumatism. The most probable cause to effect this in child-life seems to me violence done to the valve-structure during the tumultuous action of the heart, brought about by nervous excitation. I have observed many cases which seem to me to enforce the lesson that there must be a causal relation between fright, endocarditis, and chorea. A hitherto healthy child, from some well-defined causes, suffers a sudden terror. After the lapse of a few weeks she (the subject is usually a girl) becomes choreic, and a murmur is audible in the mitral area. Usually this is systolic, but it may be pre-systolic, or there may be a simulated reduplication of the second sound. There are, as I have found in some cases, no signs whatever of rheumatism, no family history of rheumatic proclivity, nothing to warrant the assumption of a rheumatic change occurring.

We know that at the moment of fright there may be an arrest of the heart's action and the arterioles may contract—there is pallor of the surface or lividity. Then ensues a violent palpitation of the heart. It is highly probable that under such conditions the blood-pressure in the aorta, the arteries, and the cavities of the heart is profoundly altered and the mitral curtains or the aortic semilunar valves subjected to strain.

<sup>1</sup> Cf. Constantin Paul: *Maladies du Cœur*, p. 743.

The experiments of Professor Roy and Mr. Adami show that the consequences of overstrain brought about by artificially increasing the tension within the aorta are roughenings of, and ecchymoses in, those portions of the mitral flaps which are normally in apposition during systole.<sup>1</sup> It is not unreasonable to infer that the violence done to the delicate valve-structures of the child under the conditions of extraordinary terror may be the initial of a limited endocarditis which may induce regurgitation or may progress to stenosis.

I am well aware that this hypothesis needs confirmation from many observers before it can be generally accepted. I hold it proved that in all cases mitral stenosis is the result of endocarditis, that in the great majority of cases this endocarditis is due to rheumatism, but that in a small minority it may be due to other influences, amongst them overstrain within the heart.

#### A SEPTIC AND UNUSUAL FORM OF LUNG DISEASE EXISTING IN THE MISSISSIPPI VALLEY DURING THE YEARS 1886, 1887, 1888, 1889, 1890.<sup>2</sup>

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DURING the past three years an unusual form of lung disease has existed in the city of St. Louis and in many parts of the Mississippi Valley. In some cases it bears a striking resemblance to croupous pneumonia, although dissimilar in many of the symptoms and physical signs; in others the signs and symptoms would point to broncho-pneumonia; and in still others the diagnosis bronchitis would be made by a superficial observer.

The great prevalence of acute pulmonary disease and the increased ratio of mortality during the years 1886, 1887, and 1888 are shown clearly by the records of the Board of Health and of the City Hospital. Through the courtesy of Health Commissioner Dudley, I can present a tabulated statement of the number of deaths, and the ratio of deaths from acute pulmonary disease to that of the general mortality that occurred in the city during the winter months of 1886, 1887, and 1888. From these tables we see the great increase of mortality, both in the number of cases and the increased ratio to the general death-rate, from the winters of 1885 and 1886 to those of 1887 and 1888. In January and February

<sup>1</sup> British Medical Journal, December 15, 1888, p. 1325.

<sup>2</sup> Read before the Medico-Chirurgical Society of St. Louis, Jan. 7, 1890.

of 1886 we find two hundred and nineteen deaths, which is about nine and one-half per cent. of the total mortality; in January and February of 1887 we find two hundred and fifty deaths, about ten per cent. of the total mortality; and in January and February of 1888 three hundred and eighty-three deaths, about equal to sixteen per cent. of all deaths reported.

The records of the City Hospital, obtained through the politeness of Dr. H. N. Dalton, Superintendent, show the number of cases and the death-rate of the so-called pneumonias during the years of 1885 and 1886 as one hundred and thirty-five cases and thirty-nine deaths; 1886 and 1887, one hundred and thirty-six cases, fifty-four deaths; 1887 and 1888, ten months, fifty-four cases, twenty-five deaths. Dr. Dorsett, of the Female Hospital, reports a death-rate of five cases out of eleven. From these figures we will see the increase in the number of cases and the death-rate to be especially great in the winters of 1887 and 1888.

In 1887 the unusual and unexpected mortality of cases which I had classed as croupous pneumonia directed my attention to the subject, and I began to investigate this class of cases. Since that time I have seen one hundred and ninety-four cases, and from them I have obtained twenty-nine post-mortems. The greater number of these cases have been seen in the City Hospital, and in the St. Louis Mullanphy Hospital, and the post-mortem examinations have been made almost exclusively at the City Hospital by the internes of that institution.

In the earlier investigation, when the clinical signs and symptoms of the disease were still unsettled and undetermined, twelve of these post-mortems showed the ordinary pathological changes of pneumonia, croupal or lobular, and tuberculosis, whilst seventeen alone gave pathological evidence of an unusual form of disease. In all of these seventeen cases the pathological appearances corresponded in a striking manner, and varying only in a degree that would correspond with differences in the intensity of the disease. The difference in the macroscopical appearance of the organs from that seen in the ordinary forms of pneumonia—croupous, lobular, and embolic—was very apparent.

Post-mortem examination showed in all cases that the greater part of both lungs was in a condition of infiltration by a morbid material, and certain limited portions were in a consolidated condition. In the least infiltrated parts the lung was of a black-brown color; on pressure a firm, sodden feeling was given to the fingers, the normal pulmonary elasticity was wanting, still it crepitated with resistance, and when placed in water did not sink. In other parts of the lung the color was of a dark brown, the lung crepitated slightly, and on pressure gave a firm, resistant feeling not unlike a piece of beef; it would not sink in water. In still other parts the color of the lung was of a light brown, being in many cases of a steel gray; here the parts affected were absolutely

solid, no crepitation on pressure, and the piece would sink instantly when placed in water. In all cases the greater portion of both lungs was of a dark or dark brown color, whilst the light brown or grayish color was found in isolated parts. The consolidation occurred in irregular areas in the middle or lower border of the upper lobe. The apex was frequently found consolidated, and in three cases was converted into a solid mass presenting a light gray appearance. These areas of consolidation were always found in each lung, varying from the size of a walnut to that involving the greater part of a lobe. The areas were irregular in shape and presented no strictly defined limit such as we see in croupous pneumonia. *The inferior part of the left upper lobe posteriorly was the most frequent site of the consolidation.*

In all cases the liver was enlarged and softened; the spleen was of a light brown color, not much enlarged, but the substance was almost always softened. In two cases it was so pulpy that it could be taken out with a spoon. The heart was often softened, and in some cases could be torn easily; in three cases it was tightly contracted in systole. The kidney showed pathological changes; they were usually congested, and many were in a condition of parenchymatous nephritis. The venous system was invariably engorged with blood. This was especially seen in the portal system. The absence of serous effusion in the cavities, which should be expected from the condition of the venous system, was noticeable in a certain number of cases. In three cases a purulent effusion was found in the pleura, and in one a purulent pericarditis. Numerous microscopic examinations of these lungs have been made by Dr. E. M. Senseny, and he reports:

In the darkest portions, which swim in water, and where crepitation can be felt, the alveolar walls are seen infiltrated with leucocytes, the alveolæ themselves remaining free. In the dark brown parts, which crepitate sluggishly, and which swim in water, besides infiltration of the alveolar walls, he finds a partial filling of the alveolæ with leucocytes, white blood-corpuscles, epithelial débris, and occasionally some red blood-corpuscles. These cling to the walls of the alveolæ, leaving the centre more or less open. In the lighter portions, which do not crepitate and which sink instantly in water, he finds an infiltration of the alveolar walls and a complete filling of the alveola. The pathological condition of the lung corresponds to that described as existing in broncho-pneumonia.

Clinically the diseases may be divided into what may be called the parenchymatous and the bronchial type of cases—the parenchymatous where the areas of consolidation are extensive and rapidly developed, and where the symptoms show the greatest intensity of the disease; the bronchial type where areas of consolidation are wanting or limited, and where the disease hardly passes beyond what may be called the first and

second degrees. In these cases the symptoms are essentially different from those seen in the former, and were in some cases of so trivial a nature that the lung disease would have been overlooked unless attention had been drawn to it.

In the clinical study of the *bronchial* type we meet with a variety and a want of constancy in the symptoms. These may be said to depend on what may be called the intensity of the disease; still there is a certain similarity, and certain symptoms will be found to correspond closely to the presence of certain physical signs in such a way that the diagnosis cannot be doubtful. The disease usually commences suddenly in previous good health, with a severe chill or chilliness; this is followed by fever, which may only last from twelve to twenty-four hours. The fever may assume a remittent or an intermittent character, and may be interchangeable with hot flushes and chilly sensations. The tongue is usually clean, very rarely coated or furred. There may be a violent headache, with pains in the limbs and back; the pains in the back are especially about the coccyx, radiating into the pelvis and thighs. In some cases the pain is in the lumbar region; there is a stiffness of the joints and a soreness and tenderness of the muscles, with a general condition of great lassitude and prostration. Great dejection, low spirits with drowsiness, is a frequent symptom. The headache is often first frontal, then following the longitudinal sinus to the occiput; at times it is rather a feeling of fulness than pain. The body is often covered with profuse perspiration during the high fever; cold sweats alternating with hot flushes are very often seen. The superficial veins are swollen and engorged with very dark blood; this was especially noticeable in the tortuous, swollen temporal vein and the veins of the forearm. There is a cough, usually of a violent paroxysmal character, and a profuse discharge of a clear, viscid fluid. This fluid is so viscid that in some cases the cup may be inverted and the secretions will hang as a string. In some cases we find, instead of a paroxysmal cough, an incessant hacking cough, with a thick, viscid secretion that is expectorated with great difficulty. Marked inspiratory stridor, resembling that of spasmodic laryngitis, or whooping-cough, is often seen, the paroxysm ceasing with retching and the expectoration of viscid fluid. The cough is frequent at night, especially on lying down, and in the early morning hours. In children the secretion is often wanting, and the cough has a deep, brassy tone. Pulmonary hemorrhage is often one of the earliest symptoms. This may be a simple discoloration of the sputa, or it may be pure blood; it is usually recurrent, at intervals of several days. In other cases the hemorrhages recur at intervals of weeks or months.

PHYSICAL SIGNS.—On examining the lungs we find the changes in the respiratory sounds characteristic and pathognomic of the condition of the lungs. *The inspiration is lengthened, sharp, and of a high pitch, and*



*immediately followed by a prolonged expiration of a lower pitch.* This respiratory sound greatly resembles that heard in the first stage of asthma; the pitch, however, is higher.<sup>1</sup> In the earlier stages the inspiration is very prolonged, suggestive of a difficult lung expansion, with a short expiration of a lower pitch; there is an absence of the normal *susurrus*, and it is harsher and sharper than normal respiration. Later the inspiration becomes harsh, high-pitched, and shorter, followed by an expiration which is softer and of lower pitch. In some cases the harsh inspiration is alone heard, the expiration being absent. This peculiar respiration I believe to be due to the swollen, infiltrated condition of the bronchial mucous membrane—the same solid œdema of the mucous membrane that we see in the fauces in similar cases. Where the areas of consolidation exist, the harsh respiration gives place to the true bronchial respiration. In all cases we find this type of breathing present. In many cases we find the respiratory sound covered by the sonorous and sibilant râles. In some cases the whistling râles and the wheezing with the oppression resemble an attack of asthma. These are always transient in character; variations occur from hour to hour. Occasionally we find mixed with the inspiratory sound large-sized, subcrepitant râles of a dry character. These râles are heard in only a certain number of cases, on expiration as well as on inspiration. The rapid and striking modifications and changes in these respiratory sounds are noticeable features of the disease. The râles come and go, and the respiratory sounds vary in different degrees of harshness and softness. Striking and rapid changes may take place within a few hours. In some cases respiratory sounds are scarcely audible—in fact, there is a complete silence. This may continue for hours, when the characteristic breathing will be heard.

*Percussion gives a peculiar wooden or deadened percussion sound, in which the pulmonary resonance is still recognizable, but the sense of resistance is greatly increased.* In some cases the wooden percussion note has a distinct tympanitic character. If areas of consolidation are present, the complete dulness of consolidation will be apparent over those areas. There is always increased vocal resonance, or, rather, *vocal shock*, with *increased pectoral fremitus*, over that part of the lung where the deadened percussion sound is found.

The abnormal physical signs may be summarized as follows: a deadened percussion sound, increased vocal and pectoral fremitus, a harsh inspiration of high pitch, followed by an expiration of lower pitch, with the occasional presence of the dry and moist râles.

<sup>1</sup> William C. Glasgow: The Etiology and Mechanism of Asthma. AMERICAN JOURNAL OF THE MEDICAL SCIENCES, July, 1887.

In comparing the physical signs of this condition with those of an ordinary bronchitis, we find this difference :

<i>Bronchitis.</i>	<i>Bronchial Type.</i>
Percussion normal.	Percussion deadened; increased resistance; occasionally tympanitic.
Vocal fremitus and pectoral fremitus normal.	Vocal and pectoral fremitus increased.
The inspiration may be harsh, often feeble, but with no change of expiration.	Inspiration harsh and high-pitched, with prolonged expiration of lower pitch.
Sonorous and sibilant râles heard both on inspiration and expiration.	Râles largely inspiratory.
Constancy of abnormal sounds during attack.	Sudden and frequent variations of the abnormal sounds.

These characteristic sounds may continue from a few hours to several weeks. The usual time is between two and four days; when they continue into the third week it is probable that the tubercular process has been added to the original disease. Resolution usually takes place rapidly, and the abnormal physical signs are quickly replaced by the normal signs. There is often, however, a noticeable tendency toward relapse, and we see often after a few days, weeks, or months, a return of the abnormal physical signs with the presence of more or less of its symptoms.

In the *parenchymatous* type the disease usually commences with a chill, followed by fever. The thermometer usually ranges between  $101^{\circ}$  to  $103^{\circ}$  or  $104^{\circ}$ ; in some cases reaches as high as  $105^{\circ}$ . The fever continues with morning remissions and evening exacerbations, but there is no strict regularity in its course. In some days we will find the highest temperature during the midday hours, or it may vary from hour to hour or day to day without any regularity. In fact, this want of a systematic regular course of the fever is one of the striking characteristics of the disease. The general height of the temperature varies greatly every few days without any appreciable cause. It will continue high for three or four days; then a remission of two or three degrees will take place, and again a high temperature will commence. During the remissions there may be repetitions of the chilly sensations, or hot and cold flushes. The fever continues to the end of the disease, and ends gradually by lysis. There is a marked absence of the crisis seen in croupous pneumonia.

In the first days of the attack the patient has a quiet and placid look, and the absence of subjective symptoms is very noticeable. The tongue is remarkably moist, healthy, in some cases slightly covered with fur in the middle; the dry typhoid tongue is a rarity. There may be no cough and

no pain in the side; headache, with a feeling of great lassitude, may be the only subject of the complaint. In some cases, rheumatoid pains in the limbs and in the back are present. The breathing is quiet, although the respiration is invariably increased. The ratio between pulse, respiration, and temperature shows a constant change and irregularity. Transient attacks of a feeling of oppression or suffocation come on, but these rarely last for any length of time. Later, the patient may experience great pain and tenderness in the lower border of the chest, about the upper border of the liver and spleen. This pain in some cases is very intense, and may last for twelve hours; it then disappears to reappear again at the same or some other place. I have known this pain to recur at irregular intervals during convalescence. It is entirely dissimilar from the nipple pain seen in croupal pneumonia. It is a myalgia not a pleural pain, and in some cases is widely different. In some cases it seems essentially neuralgic. During the whole course of the disease the same expression of content and well-being may continue in the face. There is no cyanosis or noticeable action of the accessory muscles of respiration. The skin is of a dirty white color, and, in some cases, tinged with yellow. The pulse is generally accelerated; not, however, to a marked degree. It usually varies from 100 to 110; in some cases it has risen to 120. It is full, or half full, and very compressible. I have noticed a marked slowness in several cases, and this continued up to the time of death. In one case where I happened to be present as the patient expired I could feel the slow, half full, very compressible pulse to the last. When it ceased at the wrist it could still be felt for a few seconds in the carotids, while the patient remained conscious and expired with a few gasping respirations. Profuse perspirations are very marked. In some cases they occur during the height of the fever, and again are seen like cold sweats.

On the second or third day a cough comes on with the expectoration of a viscid, ropy secretion. In some cases this occurred in great quantities; in others it was scanty, and expectoration consisted of rounded, isolated masses of a substance resembling mucine. These masses were usually expectorated with great difficulty. The cough is, as a rule, a full, free cough—what may be called a tracheal cough, and is caused by the effort to expel the accumulating secretions. Occasionally it occurs in paroxysms. In some cases blood was mixed with the expectorated secretion, and it had a strong resemblance to the rusty colored sputa peculiar to croupous pneumonia. The color, however, is rather darker, and pure blood is almost always present in these cases. In some cases free hemorrhage has been seen; in fact, it has occurred on the onset of the disease. The blood is usually dark, and is often mixed with black clots. When the hemorrhage occurs it is generally recurrent, appearing at intervals of one, two, or more days. The hemorrhage may be in

amount from half a drachm to a pint. In one case, an infant of seven months, a large hemorrhage produced death. The child had been ill two months with a pneumonia contracted in California. It is a noticeable fact that the viscid secretion always ceased with the appearance of a pure hemorrhage, and again reappeared later. In the later stages the viscid sputa shows a purulent character, this continuing for days or weeks. The purulent sputa may, however, disappear for a time, to be again replaced by the clear, viscid sputa. As the disease progresses, during recovery, a muco-purulent secretion is observed. The history and varying changes in the character of the sputa are most interesting and remarkable characteristics of the disease. The causes of these changes are unknown, as there is nothing in the clinical history that can account for them. In fatal cases, in the last days there is an absence of the cyanotic condition seen in croupous pneumonia. The death is quiet and peaceful; it may occur at the most unexpected times, and at times when the patient shows most favorable symptoms.

**PHYSICAL SIGNS.**—On percussion, even in the first days of the attack, a deadened or a wooden percussion sound is generally apparent over parts of both lungs; over irregular areas of either one or both lungs we find a more complete dulness, almost flatness. The most frequent site of the flatness is the posterior portion of the lower part of the left upper lobe, immediately under the lower edge of the scapula. Next to this, the left upper apex was most frequently affected. As a rule, several areas of flatness were found in each lung. The pectoral fremitus was invariably exaggerated over those portions of the lung giving the wooden percussion sound; over those portions giving the flat sound it was greatly increased. On auscultation over the flat areas bronchial breathing could be heard; and over those portions of the lung which gave the wooden percussion sound a harsh, high-pitched inspiration, with a prolonged expiration, was always heard with varying degrees of intensity. Vocal resonance, or, rather, the vocal shock, was always increased over the flat areas, giving a true bronchophony; and over the deadened areas a marked increase in the vocal shock was present. As the disease progressed the only change in the vocal sounds was seen in the occurrence of the adventitious râles. Over the consolidated areas very frequently small mucous râles could be heard mixed with the bronchial breathing. This occurred both on inspiration and expiration. The sonorous and sibilant râles were also heard from time to time in the other portions of the lung. In no case was the true crepitant râle heard. The physical signs of abscess of the lung were found in two cases, which made a complete recovery. At times, in some cases, there would be a complete dulness on percussion, with increased pectoral fremitus and vocal shock, and a complete absence of the respiratory sound over that portion of the lung. In a few hours the bronchial breathing would be heard. As

resolution advanced there was a rapid change in the physical signs. The dulness gave place to normal percussion sound, while the increased vocal shock and resonance disappeared, and the bronchial breathing gave place to a rather harsh vesicular breathing. The râles disappeared later than the other physical signs. When resolution was delayed the physical signs continued. In many cases amphoric breathing would be heard. In two cases this was heard at the apex and in one at the angle of the scapula. The post-mortem in these cases showed a complete consolidation of lung tissue at these points. During the course of the disease attacks of palpitation are quite frequent, with a tendency to heart failure.

It will be interesting and instructive to compare the clinical history and the signs of this disease with those found in croupous pneumonia. In certain points there is a great similarity, and in others the difference is so great that a differential diagnosis would be made.

#### *Croupous Pneumonia.*

#### *The Parenchymatous Type.*

The chill not repeated.	The chill repeated, with occasional hot and cold flushes.
Fever of a regular type, terminating most frequently by crisis.	Fever irregular, terminating by lysis.
Sharp, lancinating pain about the nipple, disappearing after a few days.	No pain in the commencement, but later through the lungs, and especially over the lower lobes.
Cough in early stage constant, painful, and suppressed.	No cough at first; later cough on expectoration.
Face distressed in early stage of the disease, with red spots on cheeks, face becoming cyanotic and livid as the disease progresses.	Face has a calm, restful look, usually somewhat pale, with rather a dirty white color.
Pulse hard, rapid, small, becoming very much accelerated toward the end.	The pulse full, compressible, rarely over 120, in some cases very slow.
Respiration in earlier stages quickened, suppressed, and shallow; in later stages deep, labored, and heaving.	Respiration not visibly accelerated. Ratio between pulse, respiration and temperature irregular. In the last stage respiration often quiet and slow.
On percussion a dulness, usually following the line of the lobes, most frequently the lower lobes. Respiratory sounds mostly normal over remaining parts of lung.	On percussion a flatness in irregular areas, affecting most frequently the middle and upper lobes; deadened percussion sound over other parts of lung, with increased vocal and pectoral fremitus.
On auscultation the crepitant râle heard in early stage; a râle redux in later stages.	The crepitant râle absent; the râle redux not recognizable.

*Croupous Pneumonia.*

Bronchial breathing, gradually becoming broncho-vesicular and vesicular as resolution takes place.

Sputa small in quantity, always viscid, almost always rusty colored.

Death agony prolonged, with labored breathing and a general condition of cyanosis.

A sero-fibrinous or fibrinous pleurisy occasionally found.

*The Parenchymatous Type.*

Respiration is bronchial over the dull area, and over the remaining portion of the lung a harsh, high-pitched inspiration, with a prolonged expiration of lower pitch on resolution changing rapidly to the normal respiratory murmur.

Sputa may be profuse, a clear, viscid fluid often mixed with blood—becoming later purulent.

Death sudden, with a few gasping respirations; peaceful.

Purulent effusions in pleura, pericardium, and other cavities.

In the Mullanphy Hospital three cases during convalescence from pneumonia died in a state of coma, with paralysis and symptoms of meningitis, and one case on post-mortem showed the rupture of a softened artery and a blood-clot in the brain. A mild delirium is sometimes seen with hallucinations. One case during convalescence had facial erysipelas with abscess of the eyelids, and later enlargement and suppuration of the maxillary glands. In the other, erysipelas preceded pneumonia, and the patient died during the latter. In one case an attack of pneumonia was followed by peritonitis, to which the patient succumbed. In the City Hospital in many cases the symptoms of acute nephritis have been added to those of the lung disease. On December 27, 1889, a patient entered the Mullanphy Hospital with acute nephritis, suppression of urine, and general anasarca. On the second day after admittance he began to expectorate quantities of viscid sputa mixed with blood, and on examination the physical signs of broncho-pneumonia were found. Gastro-intestinal disturbance has been the initial symptom in several cases. Two cases were admitted into the City Hospital with such violent vomiting and purging that poisoning was suspected. The following day the signs of broncho-pneumonia were well developed. Skin eruptions with glandular enlargement have been frequently observed. The herpetic eruptions and purulent bullæ have been most frequent. In one case an erythematous blush over the whole body somewhat resembling scarlet fever was observed. Numerous cases have complained of violent otalgia, and in many of these there has been an œdematous, swollen condition of the external ear. This occurred frequently during convalescence. Pericarditis has occurred in several cases. The parenchymatous consolidation may continue with the usual symptoms and physical signs from five to thirty days, and still resolution with recovery may take place.

That these two classes of cases are types, rather than stages, of the same disease is evidenced by the fact that clinical observation has proven that the typical condition, as observed, remains through the whole course of the disease. In the cases under my observation the bronchial type never merged into the parenchymatous, and the parenchymatous type, with its extensive consolidated areas, is observed on the first days of the illness. Observation of a certain number of cases of both types during the past two years has conclusively proven that when the process continues a certain length of time the result in both classes of disease is tubercular disease. The period when the tubercular process is added to the bronchial pneumonia is still uncertain, but from my observation I can safely say that when the symptoms and the physical signs continue for one month there is a strong probability that the bacillus tuberculosis will be found in the sputa. In a few cases careful and repeated examinations of the sputa were made by Dr. E. M. Senseny in the Mullanphy Hospital, and he finds that the bacillus appears about the third week of the disease. The appearance of the bacillus coincides in many cases with the change of the sputa from the clear, viscid fluid to the viscid, purulent secretion. At this time the expectoration may become of the typical tubercular type, showing the minute white particles, and a microscopic examination reveals the bacillus tuberculosis in enormous numbers. I can, however, mention two cases where the consolidation continued six weeks; both these patients recovered; no bacillus could be found in the sputa. Some have claimed that the bronchial type of cases are simply cases of tubercular disease, but repeated examinations of sputa by Dr. Senseny, and numerous microscopic examinations with cultures and inoculations of the lung tissues made by Dr. Bremer, have positively proved the absence of the tubercular bacillus in the early stages of the disease. It seems to be pretty well established that the condition of lung tissue in this disease proves a most fertile soil for the development and growth of the tubercular germ. This may account for the fact which I have observed during the past few years that the number of persons showing tubercular disease has greatly increased, and this is true of persons in whose families no hereditary disease or disposition can be found.

The question of the contagiousness of this disease is still an open one, but many facts have occurred that seem at least to suggest it. Last winter, when a ward in the Mullanphy Hospital contained four cases of this disease, several other cases with different forms of disease began expectorating the viscid, gelatinous sputa similar to that of the pneumonic cases, and the viscid sputa did not entirely disappear from the ward until the walls had been washed and cleaned.

I am informed by Dr. Senseny that in the female ward it was noticed

that the patients occupying the adjoining beds to the pneumonic cases seemed to contract the same disease in the mild form.

In the City Hospital many cases have occurred in the surgical ward, where the patients had long been occupants of the hospital, and confined to bed by their injuries.

That the disease is a septic disease cannot be questioned after a consideration of the post-mortem appearance of the organs. That it is primarily due to some change in the blood, possibly the presence of a microorganism, seems most probable from a clinical study of the disease. The microscope shows the presence of broncho-pneumonic infiltration of the lung tissue, but that this is a secondary process is self-evident. No local inflammatory disease could be associated with such a disorganized condition of the other vital organs, these conditions being essentially that produced by sepsis.

The microorganism causing this septicæmia I must leave others to investigate. In this age of bacteriology, with the modern improved methods of research and investigation, the solution of the problem cannot long be delayed.

In a paper read before the Eleventh Congress of the American Laryngological Association, held in Washington in June of last year, I read a paper entitled "An Œdematous Form of Disease of the Upper Air-passages."<sup>1</sup> In this paper I described a peculiar condition of the upper air-passages, accompanied by symptoms showing a close similarity to those seen in the disease of the lungs described in this paper. The similarity was especially marked in the nature of the viscid fluid which was expectorated, and in the venous engorgement and the character of the symptoms. I claimed in this paper that the throat disease was only a manifestation of a general constitutional condition, and that a similar disease existed in the bronchi and the parenchyma of the lung. I was also justified in this conclusion from the fact that in a large number of these cases of lung disease the palate and uvula will be found in the condition of solid œdema described in my former paper, and I could only reasonably conclude that the diseases of the upper air-passages—the bronchi and the lung parenchyma—are all different manifestations of the same process, varying only in different degrees of intensity.

In my former article I suggested that probably this disease, from the similarity of the symptoms, might be the "influenza," so graphically described by Graves, or the "grippe" of Valleix; but in the absence of any definite description of the pathological condition found in influenza, I was not justified in so naming it. At the time this paper was written, April, 1889, there was no notice of the presence of influenza in any part

<sup>1</sup> W. C. Glasgow, M.D.: An Œdematous Form of Disease or Septic Œdema of the Upper Air-passages. New York Medical Journal, August 10, 1889.



of the globe, and it seems strange that a disease which has always occurred in waves, spreading rapidly over large portions of the world, should show itself as a sporadic form of disease. However, the throat disease described in my former paper and the lung disease the subject of this article were not confined to this part of the country. I saw one of these cases of septic broncho-pneumonia originating on the Mexican Plateau, one in Colórado, one in El Paso, Texas, one in California, and one in Galveston, Texas. Cases of the throat disease originated in Boston, Brooklyn, New York, Philadelphia, Pittsburg, and New Orleans. At the meeting of the American Medical Association in Cincinnati, 1888, Dr. Carl Seiler, of Philadelphia, was the only physician of many whom I consulted that had recognized the peculiar throat affection. In May, 1888, Dr. R. P. Lincoln, of New York, described to me an obscure case of lung disease he had seen with Dr. Loomis, and from the description I recognized one of the cases described in this paper. If this disease is the influenza, we have had numerous cases in this country three years preceding its appearance in Europe. During the winters of 1886, 1887, and 1888 they were numerous, and during the past summer and autumn a number have been seen in the hospitals of this city. The number of cases began largely to increase during December of 1889, and at the present time there are a large number in the City and Mullanphy Hospitals. During the month of January, 1890, while the epidemic of influenza prevailed, large numbers of these cases appeared in St. Louis. The greatest number have been of the bronchial type. They have occurred as a relapse of the influenza one, two, three, four, and six weeks after the initial attack.

Three years ago, when the parenchymatous type of this disease was considered as croupous pneumonia, it was treated by the stimulant plan usual in this disease. The sudden and great mortality proved the uselessness of this form of treatment. From the success attendant on the use of benzoate of soda in the œdematous disease of the upper air-passages, I was led to use it in this condition of the lung, and the success and the greatly diminished mortality were so striking that I am convinced it is the best remedy for this class of cases. My individual experience is in accordance with that of the gentlemen in charge of the City Hospital, who have found a greatly diminished mortality since the benzoate of soda treatment was introduced. I usually give large doses of the benzoate of soda with acetate of ammonia, and supplement this with large doses of muriated tincture of iron, with a moderate use of stimulants. The excessive use of stimulants is injurious, as at the critical periods the heart cannot respond. The addition of the salicylate of soda in some cases to the benzoate seems to be useful. In certain cases large individual doses of quinine will be necessary to bring down the temperature when it becomes too high, and as there is a constant tendency to heart failure

the use of digitalis and the other heart tonics and diffusible stimulants will often be necessary. *Careful and constant attention is absolutely necessary. Many patients die who might be saved by the timely administration of a stimulant in threatened heart failure.* Antifebrin has also been used with a certain amount of success in the City Hospital.

In conclusion, I would publicly express my thanks to Dr. Dalton, Superintendent of the City Hospital, who has placed the large material of that hospital so freely at my disposal, and also to the physicians in attendance at that institution during the past two years. Their interest in the investigations of this disease, their post-mortem examinations, and their confirmation of the symptoms and physical signs as embraced in this paper will strengthen the views I have advanced. My thanks are also due to Dr. L. Bremer, Professor of Physiology and Bacteriology in the Missouri Medical College, who has assisted at most of the post-mortems.

## NOTES ON SOME OF THE RELATIONS OF UNDERGROUND AIR AND WATER TO QUESTIONS OF PUBLIC HEALTH.

BY DAVID PAGE, M.D.,

LOCAL GOVERNMENT BOARD, LONDON.

IN the model series of by-laws for the regulation of new streets and buildings, prepared by the English Local Government Board for the guidance of sanitary authorities, are two clauses of which the express object is to secure wholesome sites for dwelling-houses.

One of these clauses provides that :

“A person who shall erect a new building shall not construct any foundation of such building upon any site which shall have been filled up with any material impregnated with any animal or vegetable matter, or upon which any such matter may have been deposited, unless and until such matter shall have been properly removed, by excavation or otherwise, from such site.”

The other clause is as follows :

“Every person who shall erect a new dwelling-house shall cause the whole ground surface or site of such building to be properly asphalted or covered with a layer of good cement concrete, rammed solid, at least *six inches* thick.”

The first provision aims at preventing the danger obviously arising from the erection of houses upon sites which have been made by the obnoxious practice of “tipping” or filling up clay pits and inequalities of the ground with house and other organic refuse prone to putrefaction or decay, while the second has for its special object the protection of the household from the risks to health involved in the passage of dampness and foul air from the foundations into the interior of a dwelling.

It is unfortunate for the efficiency of local administration that sanitary authorities, large and small, have been slow to recognize the importance of these provisions, which, too generally, they have either neglected to adopt, or, having adopted, shown by an arbitrary and inconsistent application, their misapprehension of the real object in view. This is particularly the case in regard to the second of these essentially preventive measures against disease. An authority adopts the by-law and proceeds to enforce it in houses built upon an impervious clay subsoil, but waives it in those built on gravel or sand, in accordance with popular notions as to the dampness of the one and the dryness of the other, thus failing to appreciate the fact, less obvious than the dampness of a clay soil, that porous sands in general may, by reason of this very quality of porosity, give rise on occasion to special and even more serious dangers to health.

The influence of soil in its relation to health and disease is one of the oldest and has always been one of the most prominent subjects of medical disquisition, from a time even before Hippocrates, in whose works it is dealt with as one of the material conditions affecting life.<sup>1</sup>

At one or another epoch, so-called telluric influences have been successively invoked to account for all that was inscrutable or especially disastrous. Such for instance was the explanation held by leading physicians of the age as sufficient to account for the epidemic visitations during the fourteenth century of the pestilence known as the Great Mortality or Black Death—the disease which by its ravages in Florence gave Boccaccio the narrative of the *Decameron*: of the Sweating Sickness in its recurring epidemics from nearly the end of the fifteenth until the middle of the sixteenth century, and of the later visitations of the Plague.

But in these, as well as many other instances outside the class of epidemic diseases, the question of cause remained merely a subject for curious and bewildering speculation, which continued to serve the purpose of the science of the times with little change beyond what might be incidental to succeeding phases of thought down to quite recent years.

It is entirely a result of the modern progress of clinical medicine and as a direct consequence of more accurate diagnosis and identification of disease, that inquiry into causation has reached the precision of method it follows to-day. In relation to our present subject, *bahn brechende* (to employ a felicitous German word) observations of Pettenkofer upon the connection between outbreaks of enteric or typhoid fever and changes in the soil associated with variations in the level of the ground water, may be claimed as the starting-point of the interesting series of investigations

<sup>1</sup> Hippocrates: Lib. de aere, aquis et locis.

which have since been carried on into the influence of meteorological and topographical conditions in determining the prevalence of disease.

Although later inquiry into outbreaks of enteric fever or cholera has not confirmed the importance attached by Pettenkofer to changes in the soil as a *general* condition of the spread of these diseases, the weight of evidence being conclusively in favor of other agencies, as contaminated drinking-water and the air of infected sewers, yet the possibility of the influence of such changes as a localizing condition, which the greater frequency of other agencies may cause to be overlooked, ought not to be lost sight of. This remark applies especially in those outbreaks of a peculiarly circumscribed character apparently unassociated with water or sewer infection, where, in the absence of known introduction of disease, the observer is inclined to assume a genesis from some coincident insanitary circumstance. But, apart from the etiological value of this theory, Pettenkofer's distinctive merit has been to direct attention to the exact investigation of the local and seasonal relations of epidemic disease, while he was one of the first to recognize and to stimulate observations, such as those of Professor Fodor, of Buda-Pesth,<sup>1</sup> carried on continuously and systematically over a series of years into the intricate problems presented by this wide field of epidemiology.

The physical circumstances of soils largely determine the facility and area of distribution of the air and water contained within their pores, a loose and open soil giving opportunity for considerable freedom of movement. Air under these conditions readily responds to the laws of expansion of gases, changes of temperature and of barometric pressure, and mingles directly and by diffusion with the upper atmosphere, with which it is in effect continuous.

The action of wind upon the surface has been shown to set in motion the subterranean atmosphere, and the same result is brought about by fluctuations in the level of the ground water below it.

In well-paved towns, where the open spaces about the houses are flagged or cemented but the sites of the houses themselves are unprotected and formed merely by the natural surface, the ground air has then its chief outlet into the houses, its ascent being materially aided by the warmer temperature and the aspirating action or suction of the house fires. Where cellars or basements exist, with walls in immediate contact with the soil, instead of being cut off by an outer open area, this effect is enhanced, as ordinary brick or stone and mortar walls allow very considerable transpiration of air. Fodor has shown that the penetration of ground air into house basements takes place with marked intensity in comparison with houses merely built upon the ground level. In porous

<sup>1</sup> Hygienische Untersuchungen über Luft, Boden und Wasser, insbesondere auf ihre Beziehungen zu den Epidemischen Krankheiten.

soils the ground air may be drawn for considerable distances in a horizontal as well as vertical direction, bringing with it impurities and effluvia from quite unsuspected localities.

The underground or subsoil water as distinguished from mere moisture or humidity exists at varying depths from the surface, determined by the existence of underlying impervious layers holding it up and upon facility of outlet. The flow of rivers and conditions of rainfall bring about fluctuations of level in this subterranean sheet of water. In a porous soil the movement of water may be perceptible over a considerable area.

Förster, of Breslau, cites an instance where, after construction of a gasometer, the wells of the locality became impregnated with the smell of coal gas. At first it was conjectured that the gas mains were leaky; but it was noticed that the water of the gasometer tank fell and had to be renewed from time to time. This tank was cemented and made watertight and the wells meanwhile pumped out and cleansed, with the result that no further leakage of the gasometer or contamination of the wells took place. The distance from the one to the other was upward of 560 paces. Other instances might be given, but this may suffice to show the extent of movement of underground water and at the same time the risk of pollution to local sources of water supply.

The moisture or dampness of a soil is dependent on the movements, including evaporation and capillary attraction, of the underground water, and also upon rainfall. When the conditions of water-logging are such that the soil is constantly moist or wet, then, whether it be clay or gravel, the effect will be similar, and evaporation, which is known to be more rapid from a porous solid than from the surface of a sheet of water, is continuously going on and causes those sensations of coldness and rawness which are familiar characteristics of such soils.

Where organic impurity exists, the process of oxidation on the one hand or putrefaction on the other will be determined by the greater or less amount of air and moisture present and the conditions favorable to bacterial life. For it has been shown by recent investigations on this subject that the processes at one time attributed to chemical energy alone are now largely influenced by microorganisms of one or another kind. The process of nitrification or production of nitrates in the soil, at one time regarded as a result of chemical oxidation, has been found to be brought about by the action of a bacterium. When, however, under limited access of air putrefaction occurs, different species of bacteria are concerned in the process. Sandy or gravelly soils from their porous character are more favorable to oxidation and rapid decay than clay or close soils. And the significance of this to health is obviously that a soil which oxidizes quickly will not retain hurtful, and it may be infectious, matters, which by a soil of opposite character may be retained for an

unknown length of time, and, on opportunity, be communicated to the air or water.

From these considerations it follows that a well-aërated soil affording unobstructed movement to the air possesses greater power of getting rid of its organic impurities than one of an opposite quality, and is in the same degree less likely to be a nidus for the germs of disease.

The source of the ground air is primarily the atmosphere at the surface. Penetrating to depths dependent upon freedom of access and level of the ground water, the chemical constitution of the air becomes changed, the most remarkable result being the largely increased proportion of carbonic acid. The richness of ground air in this gas was first ascertained by the distinguished French chemist, Boussingault, in his researches into agricultural chemistry, who found that the amount reached 97.4 per 1000 volumes, the proportion of carbonic acid in the atmosphere being only 3 or 4 per 10,000 volumes.

Later experiments by Pettenkofer and others have confirmed these observations, the amount being found to vary with season, locality, opportunity for decomposition of organic substances, and to increase with depth from the surface. Thus Fodor found it to be 101.9 per 1000 at the depth of one metre (39 inches) and 376.1 at a depth of 4 metres (13 feet). Thus the carbonic acid of the ground air is apt to accumulate in wells, rendering the air irrespirable. It may be taken as a measure of the impurity of the ground air, and in soils of similar characteristics of density affords a corresponding indication of the changes going on. In compact soils the amount of carbonic acid is comparatively greater than in porous soils, even where the latter are less pure, a result which is dependent upon the less facilities for ventilation and circulation of air such soils possess. The influence of the ground air upon the atmosphere has been shown by Fodor to be remarkable and to a large extent unexpected, but to this interesting part of the subject the limits of this paper permit only incidental reference. Observations of the amount of carbonic acid in the atmosphere have shown that while the amount is pretty constant within narrow limits, variations of a minute but well-marked order occur throughout the year. He found the amount lowest in winter, increasing in spring, falling slightly in the summer months and reaching its maximum in autumn, September to November.

But there are also daily oscillations in the amount of carbonic acid, which are most considerable in autumn, the end of spring, and the beginning of summer, the greatest constancy being observed in winter and early spring.

At night the amount of carbonic acid in the air was greater than during the day in autumn, but less in spring. Rainfall was found to diminish the amount of carbonic acid, but whilst this effect was permanent in winter, in summer it was followed shortly afterwards by a marked

increase. On the other hand, frost increased, then diminished, the amount of carbonic acid.

Lastly, in relation to atmospheric pressure, Fodor found that in winter the carbonic acid increased with increased barometric pressure and *vice versa*, while in summer the converse was observed, the carbonic acid increasing with diminished pressure.

His later observations prove that not only the whole of the changes are dependent upon the ground air, but that the ground air is the chief source of the carbonic acid in the atmosphere.

He found the lowest stratum of the air next the ground to contain more carbonic acid than the higher strata, and that the fluctuations of the carbonic acid in the lower stratum according to season and the like, preceded similar changes in the higher regions.

The soil was found also to possess the property of absorbing and therefore diminishing the amount of carbonic acid in the atmosphere, the lower stratum becoming poor in amount and notably in rainy days, in spring, and during thaw, thus explaining some of the changes already described.

Depending in the first instance upon the decomposition of organic substances within the soil, and varying in amount with the greater or less degree of impurity, the carbonic acid thus escaping into the air shows the constant ascent and diffusion of the ground air and that this is greater in autumn and summer. This ascent of ground air into the atmosphere is accompanied by a corresponding ascent into dwelling-houses, greater at night than in the daytime on account of the greater warmth and rarefaction of the ground air, during these seasons of the year. From these considerations Fodor concludes that the atmospheric carbonic acid is in chief part a product of the changes going on in the soil, and in its variations is an index of the rising of the ground air and the extent of its pollution by processes of decay. The question remains unanswered how far the ground air and its escape into the upper atmosphere influence the development and spread of infectious diseases.

The ascensional force of air streaming from the ground has been shown to be considerable, and to be capable not only of conveying gaseous or volatile substances and effluvia upward, but also particulate matter bearing microorganisms. To what extent microorganisms thrive in the deeper layers of the soil has not yet been determined. In some recent observations in Germany upon bacteria in drinking-water it was found that by hard pumping of wells the bacteria almost completely disappeared, from which it was concluded that the deep-ground or spring water was nearly free from them, and that the source of their entrance into the well was from the air or upper layers of the soil. Observations as to the influence of season led to similar conclusions, the microorganisms increasing in number between April and October, after which they

became fewer in amount, their numbers running parallel to the temperature of the superficial layers of the soil.

But how far the soil may be the brooding-place of pathogenic bacteria; how far in relation to certain of the life-processes of such bacteria it may play the part of an intermediary host, is still unknown. The observations of Buchanan, in this country, and of Bowditch, in America, upon the undoubted influence of damp soil in causing consumption, the effects of marsh air in producing malarious and other paroxysmal fevers, and the general ill effects commonly observed to be exerted by an impure and undrained soil upon the health of persons living upon it, all point with more or less confirmation to the associated life-processes of lower organisms with those conditions of ground air, ground water, and organic change which, in their interaction and its results, constitute an unhealthy soil.

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#### ON THE RELATION OF IMPETIGO HERPETIFORMIS (HEBRA AND KAPOSÍ) TO DERMATITIS HERPETIFORMIS (DUHRING).

BY LOUIS A. DUHRING, M.D.,

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As there have been considerable discussion and some diversity of opinion as to the propriety of grouping impetigo herpetiformis under dermatitis herpetiformis, I desire briefly to present my reasons for having originally adopted this view. It may be well to premise my remarks with the statement that heretofore, in my several communications on this disease, I have confined my observations largely, if not exclusively, to the cutaneous manifestation—to the skin disease proper—with the idea mainly of calling attention to the multiform phases of the disease. The symptoms alone, it may be said, have up to the present time received attention; the equally, if not more, important subjects of etiology and pathology being for the time intentionally slighted. In all rare or obscure affections the eruption itself, including its history, symptoms, evolution and involution, is first to be considered. After these points have been determined upon, as far as the material at hand will permit of, the questions of the cause and nature of the disease naturally follow for investigation and discussion. In addition to the clinical memoranda and observations presented from time to time, I have sought to bring together into one group such previously reported cases, scattered throughout literature, and certain other allied forms of disease, as seemed to me might properly be included under one head. Circumstances have, for some time past, prevented me from con-



tinuing my study on the subject, which will account for what may seem indifference or neglect of the question.

It is now over five years since I first called attention to a disease of the skin, which, up to that time, had not received special notice. A number of cases of a peculiar cutaneous disease had, from time to time, previously come under my observation, all possessing certain striking features in common when viewed in their totality—that is, throughout their complete history, including relapses. There existed manifestly several quite different varieties of the affection, as shown by the presence in some instances of a decided predominance of certain lesions, while in other cases different forms even prevailed. But beneath this cloak of multiformity, and notwithstanding the occurrence of diverse lesions simultaneously or of those which made their appearance from time to time as the affection ran its course, certain striking pathognomonic symptoms could not fail to impress themselves upon the observer, showing the existence of a peculiar and undescribed disease. Had a few cases only been encountered at long intervals, these features might not have been recognized so readily.

As the disease represented by these examples was practically unknown and had no place in literature, it seemed necessary to bestow upon it a title. The relatively large number of cases that I had encountered seemed to warrant such recognition. By reason of the uncertain and variable character of the eruption, of its conspicuously diverse primary lesions and their distribution and arrangement, occurring in the several forms or varieties in which it usually appeared, and, moreover, because of its distinctly herpetiform feature, the name *dermatitis herpetiformis* was selected. The term *dermatitis*, owing to the idea of widespread or general and varied inflammation thereby conveyed or implied, and because of its being non-committal as to etiology and pathology, appeared to meet the requirements better than any other that suggested itself; while one of the most distinctive characteristics was made plain by the word *herpetiform*. To this latter point I wish to direct special attention, and I would here say that the herpetiform element has been present in all of the cases (now, perhaps, twenty in number) that I have seen, in some instances marked, in others existing to a moderate or only a slight extent.

As the matter stands to-day, the disease is sufficiently well defined to be readily recognizable by all observers, where typical cases are concerned. I cannot well see how pronounced forms, especially if held under observation long enough to note the ever-changing lesions and the varied aspect of the eruption, can be confounded with other better known affections. In ill-defined, atypical forms it is, of course, liable to be mistaken for certain other diseases to which it may bear more or less resemblance, more especially erythema multiforme, herpes iris, pem-

phigus, and eczema, according to the views held by the observer, precisely as in other doubtful forms of skin disease. Thus, for example, as is well known, discrepancy in diagnosis is not infrequently encountered in eruptions characterized by the formation of blebs, one observer regarding all such manifestations as varieties of "pemphigus," another merely as instances of "bullous disease,"—a vague, non-committal expression, plainly indicating an unwillingness on the part of the observer to subscribe to the view that every bullous eruption must necessarily be pemphigus.

The relations of dermatitis herpetiformis to erythema multiforme, herpes iris, and pemphigus, are, I need not say, most interesting and important topics, to which I naturally have had my attention directed. But these subjects cannot be entered upon without a great deal of discussion. Here, at once, arises the matter of definition. For example, how shall these diseases—erythema multiforme, herpes iris, and pemphigus—be defined? What forms of eruption shall be included and what excluded under these names? Shall the old, time-honored, classic definitions continue to be observed, or should new ones be framed to take in enlarged views concerning these processes? This question cannot be entered into at present, nor do I wish now to speak of the relation of dermatitis herpetiformis to the diseases just cited, nor to any other vesicular, bullous, or pustular affections, except one, namely, the impetigo herpetiformis of Hebra.

At this point I must be permitted to go back a few years, in order to make my position, views, and reasons therefor clear. As is known to all, Hebra described, in 1872, a grave, pustular disease of the skin, of which several instances had, from time to time, been observed at the Vienna General Hospital. The description given was brief, and in the dermatological world at large the subject attracted comparatively little attention. Dermatologists in other parts of Europe and in this country seemed at a loss to identify or recognize the disease. In the United States it did not seem to be known. My American fellow-dermatologists in the large cities, with whom I conversed, were not familiar with it, nor was I myself able to reconcile Hebra's description with any of the pustular affections encountered in my field of study. Nor was the disease recognized either in France or England. Moreover, considerable confusion existed even in Vienna, competent observers there being by no means of the same opinion regarding the disease and its proper classification. Thus, Hebra himself first looked upon it as belonging to the herpes group, and called it "herpes impetiginiformis," with the idea that it was a form of herpes; subsequently he regarded it as an herpetiform impetigo. Nor was the subject materially elucidated by the publication of several of Hebra's original cases by Auspitz and by Geber, the first of whom looked upon it as herpes, calling it "herpes vegetans,"

while the latter also endeavored to prove it to be herpes. Then Neumann, who was without doubt familiar with Hebra's cases, emphatically designated it herpes, terming it "herpes pyæmicus" or "herpes puerperalis." Even at this later date, notwithstanding all that had been written by the Viennese dermatologists, the subject was far from clear to the minds of foreign dermatologists. The consensus of opinion on the part of the Vienna observers, however, seemed to be that the disease was an undescribed form of herpes, as is evidenced by the names decided upon by the several reporters. Nor, finally, was the matter made plainer by Hebra himself, who stated that the case previously reported by himself and Baerensprung as "herpes circinatus" and figured in their atlas of skin diseases, was also an example of this same disease, namely, impetigo herpetiformis. It need scarcely be said now, in passing, that if the views (to be referred to) recently put forth by Kaposi be accepted, this peculiar case must be excluded from the list. No further examples were at this period reported, and the matter for the time being remained quiescent.

In the meantime, in Philadelphia, during this epoch (from 1870 to 1880), a series of cases of an unknown, inflammatory, polymorphous affection of the skin had come under my observation—some in hospital, others in private practice. Among these was one which, when it first was brought to notice, appeared to me (and to other physicians who saw it) to be an example of the impetigo herpetiformis of Hebra. It apparently represented a mild expression of that disease and showed the chief clinical features depicted in one of the portraits (case of 1871) in Hebra's atlas. The resemblance was striking. The cutaneous manifestation was altogether novel, and I was unable to classify it elsewhere.

The patient was a woman. The eruption was general and extensive, and was exclusively pustular (with no signs of erythematous, urticarial, vesicular, or bullous lesions) and crusted, the pustules being whitish and yellowish, and of varied shapes and sizes, some being distinctly elevated and somewhat conical or rounded, others flat; some were miliary, others small, pea-sized, and some larger; all being seated on more or less inflamed bases or arising from inflamed patches. The eruption, as a whole, was, moreover, herpetiform, showing a distribution and arrangement *here and there* similar to that seen in imperfectly developed or abortive herpes zoster. The lesions themselves were *irregularly* grouped, as is sometimes noted in small discrete patches of zoster. The central pustules, often aggregated in little bunches of two, three, or four, were small but of variable size; the older ones were more or less crusted, and were closely encircled in an incomplete, broken manner, with new, for the most part sparse, flat, minute pinhead-sized pustules. There was, moreover, marked pigmentation in patches here and there; also malaise, with a disposition to be cold and hot alternately, hardly amounting to a regular chill. Finally,

there were heat and burning and some itching, but recent scratch-marks were not conspicuously present. In brief, the case possessed, so far as the skin was concerned, the chief characteristics of Hebra's impetigo herpetiformis, and this diagnosis was accordingly made. The disease persisted, the eruption repeating itself in a succession of crops with the same kind of lesions, and within six months disappeared, to be replaced, however, by an altogether different dermatological picture,—one with which I was quite familiar, namely, a polymorphous, mixed vesicular and bullous, inflammatory, herpetiform eruption, accompanied with severe burning and itching, or, briefly, the typical form of dermatitis herpetiformis. Subsequently, the previous impetiginous, or strictly pustular form, recurred, manifesting itself precisely as before; and during the next year the eruption again became vesicular and bullous.

There was now, after several years of observation, but one conclusion to draw—namely, that these diverse cutaneous manifestations all belonged to one pathological state, were simply varieties, or forms, of one process. Other similar cases later came under notice which strengthened this view, and I accordingly expressed myself that Hebra's impetigo herpetiformis (as I understood that disease from Hebra's description and portraits) might be regarded as a pustular manifestation of an extensive multiform (erythematous, vesicular, bullous, and pustular) herpetiform disease of the skin. This view, moreover, seemed to be supported by a case of "impetigo herpetiformis and pemphigus," reported by Heitzmann, of New York, which, while it presented the characteristic cutaneous features of Hebra's disease for a period of several months, abruptly changed from a pustular to a bullous affection, the blebs being in all respects like those of pemphigus. From this case Heitzmann drew the conclusion that both diseases arose from identical causes, and should be considered as being kindred to each other. It may be added that in this case the disease did not occur in connection with pregnancy, and that no cause could be assigned for its presence, the patient having been an apparently healthy woman, fifty-two years of age. The disease, nevertheless, ran a fatal course in about eight months from the beginning, œdema of the meninges setting in toward the end. There can scarcely be any question here concerning the diagnosis of impetigo herpetiformis, for Dr. Heitzmann had not only seen three of Hebra's cases in Vienna, but had, moreover, painted the portraits which portray this disease in Hebra's atlas.

The subject remained *in statu quo* until my several communications appeared, and, later, Kaposi's valuable contribution on impetigo herpetiformis, in 1887, in which the relations of that disease to some other affections (including dermatitis herpetiformis) are discussed. From this latter article a much more satisfactory idea of this disease is obtained than from any previous publication. The subject is presented in a different,

if not a new, light, and is fortified by reference to additional and more recent observations, and we are enabled to note what the author would have us regard as impetigo herpetiformis. If this definition, then, is to be accepted, and to be restricted so as to include only such cases as the author refers to, I admit that it becomes questionable whether the disease should be regarded as a variety of dermatitis herpetiformis. If the definition is to be rigidly confined to such cases (including their nature) as Kaposi quotes, the disposition of the matter would be simple, but other observers of this disease (or what they assume to be the same affection) do not entirely agree with the Vienna dermatologist. According to Kaposi, *the disease is invariably characterized by superficial miliary pustules, which begin as such and remain unchanged throughout their entire course, always arranged in groups and clusters, new lesions appearing on the border of older and crusted confluent pustules, in one or more series, on inflamed bases, while recovery takes place in the centre; furthermore, the disease occurs only in pregnant or puerperal women, and is accompanied with chills and marked fever, and is almost invariably fatal.* This definition is clear and simple enough, but does it include all forms of the disease? Is it sufficiently comprehensive? The question might pertinently be raised: Is it wise to make the definition so circumscribed; is the disease not liable to vary from this type; does it invariably show these very precise features; are, for example, the pustules always miliary, and from beginning to end; may they not vary in size, and, more especially, be considerably larger? Surely one portrait of this disease in Hebra's atlas (case of 1871, referred to before) fails to portray a miliary eruption; on the contrary, not only are many of the pustules large, but there is, moreover, considerable variation in size; nor is their arrangement and mode of extension or spreading apparently like that depicted in the other cases, namely, peripherally, as in herpes circinatus. I may remark further on this point that I find it difficult to reconcile this portrait with Kaposi's description of the eruption, and, finally, that it was mainly upon this illustration that I ventured to base the opinion of the identity of one of my cases (that of Annie McC., *Journ. of Cut. and Ven. Dis.*, vol. ii. No. 8) with the disease depicted. If Kaposi's views be adopted, Heitzmann's case, already referred to, cannot be regarded as impetigo herpetiformis, although, as previously remarked, from the fact that Heitzmann had the opportunity of seeing several of Hebra's original cases, it would seem that he must be entirely familiar with the subject. Nor can Zeisler's case (*Monatshefte für prak. Dermat.*, 1887, No. 21) of so-called "impetigo herpetiformis," which he, Dr. Hyde, and others believed to be an example of the Hebra and Kaposi disease, be regarded as such.

It may be questioned further: Does impetigo herpetiformis in all instances exhibit the same grave general symptoms and course, termi-

nating in almost every case fatally? Such symptoms and termination assuredly might be anticipated if it were generally admitted that the cause was uniformly septicæmia,—that the disease was always of septicæmic origin. But may not various causes give rise to the same cutaneous manifestations, not only here, but elsewhere, as in the case of certain other affections of the skin, as, for example, eczema? There was a time, not long ago, when Kaposi held that the disease occurred exclusively in women, but lately he has himself given the notes of a case observed in a man. From this criticism I wish merely to intimate or suggest that our definitions should not be drawn too closely. Most observers will agree that as our experience enlarges in dermatology we find in all directions the need of more breadth or latitude. Expansion in almost all instances, we note, comes sooner or later.

I have thus endeavored to present a concise historical sketch of impetigo herpetiformis, and also, more particularly, to state my reasons for having, in my earlier papers, regarded it as one of the manifestations of a peculiar, polymorphous, extensive process designated dermatitis herpetiformis. Whether I was right or in error in advancing this view is a question depending largely, in my opinion, upon the definition that shall be accorded to impetigo herpetiformis; and here I may remark that it is far from my thoughts to undervalue the observations of the distinguished Vienna dermatologist, whose extended and unique experience with impetigo herpetiformis entitles his communication to due consideration. My desire has been from the beginning simply to arrive at the true position which that disease occupies, and more especially to define its relationship to other allied affections. I may say, in passing, that had Kaposi's article been published at the date of my several communications, I should probably have, in some degree, qualified the conclusions concerning the identity of the affections.

In bringing these remarks to an end, I would say that I have always held to the opinion that all discussions tending to create perplexity should be avoided. On this point I feel strongly in the present case, concerning the relationship of the two forms of eruption which are the subject of this paper. The matter can only be settled by fully recorded observations at the hands of competent reporters, and it is highly important for future studies and deductions that the cases be ranged under such titles as will convey the clearest idea of the clinical picture. Considering, therefore, the existing difference of views, and in order that no possible barrier may impede progress, it will perhaps be to the advancement of the subject to separate, for the present at least, the diseases; and that, in the future, observations be reported under one caption or the other, as may seem most in harmony with the clinical facts of the case.

## A CASE OF GLIOMA OF THE RIGHT CRUS CEREBRI.

BY WILLIAM PEPPER, M.D.,

AND

FREDERICK A. PACKARD, M.D.,  
OF PHILADELPHIA.

THE following case was seen in connection with Dr. F. A. Rankin, of Newport, R. I., and presents several points of decided interest which make it worthy of a place in the records of cerebral tumors. The existence of a marked distal irritative condition, suggesting a reflex origin of the symptoms presented, embarrassed what might, in its absence, have been a matter of approximately certain diagnosis.

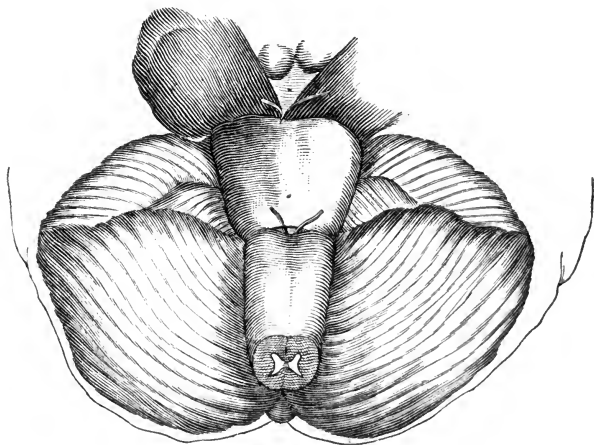
Hamilton R., white, aged nearly four years. The mother, thirteen years older than the father, is in good health. The father was married at the age of eighteen, and is a confirmed asthmatic. The first child born to these parents died after an illness of a few hours from what was said to be pneumonia. The patient was always a vigorous-looking child, but was thought by some never to have appeared "quite natural" (probably only an idea).

Without any recognizable predisposing or exciting cause, on May 15, 1889, awkwardness in using his left hand and foot was for the first time noticed, it being also remarked that he eat less neatly than usual. From this condition the left side steadily and rapidly became the seat of nearly complete paralysis. The hemiplegia was not complete, as the left leg and foot could be moved, although only to a very slight extent. The left upper extremity was completely paralyzed, the elbow spasmodically flexed, the fingers firmly closed over the thumb, the latter being firmly drawn into the palm. There were no contractures of the lower extremity. Pain was caused by an effort to overcome the flexion of the elbow and fingers. The contractures of the left arm were said to become less firm during sleep. The left side of the face was completely paralyzed, the tongue being protruded to the left. Dr. Rankin, who was in attendance upon the case, had at one time observed occasional ptosis of the left upper eyelid, with strabismus. At the time of examination, however, both eyes could be easily opened or closed at will, there was no squint and the state of the pupils was normal; vision was apparently unimpaired as roughly tested by the ability to count fingers. There was no diplopia; under the circumstances existing at the time of examination no ophthalmoscopic examination of the fundus or accurate estimation of the fields of vision could be made. Hearing was apparently unimpaired. There was no complaint or evidence of headache or of pain in any other part. Accurate investigation into the condition of sensibility to touch, temperature, or pain was impossible, but there was no gross change noticeable in any of these particulars. There was no marked loss of flesh, and when seen two days before his death the child was apparently vigorous and well nourished.

The patient slept well. During sleep the action of automatic swallowing was evidently impaired. He had frequent choking spells, but

although there was constant dribbling of saliva from the mouth there was no regurgitation through the nostrils. After the choking spells he had labored and irregular breathing. He took a good deal of liquid food, but the appetite was impaired. The bowels were regular. The frequency of micturition gradually became increasingly diminished, until two weeks before death he urinated but once in twenty-four hours, even then voiding but a small quantity.

His condition was rapidly growing worse, with decreasing willingness and ability to take nourishment; more frequent choking spells from accumulation of mucus and saliva; and progressive loss of power, so that he seemed very helpless, although the actual palsy was limited to the left side. A high degree of phimosis existed, and, although there was strong reason to diagnose serious cerebral lesion, it was deemed better to have circumcision performed in the hope that the hemiplegia might, in part at least, be of reflex origin from that source. The operation was accordingly performed by Dr. Rankin, on the following day, under the influence of ether, of which but a very small quantity was employed. The etherization was accompanied by no disagreeable or unusual symptoms. The prepuce was found closely united to the glans by adhesions, which were separated in the usual manner. He bore the operation well and recovered from the effects of the anaesthetic easily and naturally. During the remainder of the day of operation he seemed as well as he had been for some time, took food, asked for his toys, and made no complaint. During the night following the operation he passed urine.



About fourteen hours after the operation the child became unconscious, the left pupil tightly contracted, the right enormously dilated. The spasmodic condition of the left arm disappeared and was replaced by flaccidity of the whole left side; very little movement was, of course, made with the right side. There was some transient contraction of the muscles of the jaw. Respiration was very shallow and irregular, later becoming tidal in character. The rectal temperature rose to  $103^{\circ}$  F. Several convulsions accompanied by opisthotonos preceded death, the latter occurring twenty-four hours after operation. On post-mortem examination there



was found a hazelnut-sized tumor projecting from the outer side and under surface of the right crus cerebri, its bulk lying close to the point of entrance of the crus into the body of the pons Varolii. Microscopic examination of sections of the growth, by Dr. Allen J. Smith, showed it to be a glioma.

The case presents numerous points of interest, particularly from the fact that the growth was confined to a portion only of the tract by which all motor and sensory fibres travel between the cerebral cortex and the nerve trunks.

The diagnosis of the cause of hemiplegia lay between cerebral injury, thrombosis, embolism or tumor, and reflex irritation from the glans penis. Cerebral injury was excluded by the history. The time of progressive increase of symptoms was too long for thrombosis and not sudden enough for embolism to be looked upon as the causative factor. Moreover, the symptoms continuously progressed, as would not have been the case were the hemiplegia of an embolic origin. The diagnosis then lay between hemiplegia produced by cerebral tumor and that due to reflex causes. Neither of these factors could be positively excluded, yet there was evidence sufficiently strong to warrant the possibility of either condition existing. The history of gradual onset and steadily progressive course of the paralytic symptoms pointed toward the existence of brain tumors, but would not exclude the, at least, partial reflex element caused by the existing source of irritation. The oculo-motor symptoms resembled in their fugaciousness those due to reflex irritation rather than brain tumor. This instability of some of the symptoms would, on the other hand, not exclude brain tumor, as temporary intensification of existing or appearance of additional symptoms is by no means uncommon in those cerebral tumors which are prone to vascular distention or hemorrhage. Had ophthalmoscopic examination of the eye-grounds been available, more positive evidence might have been obtained.

Taking the view of tumor as probable, we see that no localizing symptoms were presented other than those which indicated that the lesion was situated upon the right side of the brain, either as an extensive tumor in the Rolandic region, a central growth involving the internal capsule or its surrounding nuclei, or of the right crus so situated as to leave undisturbed the upper or sensory layer.

Viewed by the light shed upon the case by the autopsy the symptoms are seen to correspond remarkably closely to those necessarily produced by a lesion such as was found, except for the fact that it is difficult to explain the escape of the fourth cranial nerve, whose trunk winds around the crus at very nearly the position occupied by the tumor. The facial nerve trunk was not affected, the existing palsy being upon the side opposite to the lesion, and due, therefore, to implication of the facial fibres between their origin in the cerebral cortex and their decussation

in the pons Varolii. Had the entire width of the crus been involved, or had the tumor been of greater size, there would doubtless have been presented permanent symptoms referable to the oculo-motor apparatus from pressure upon one or both of the third nerve trunks at the point of emergence from the angle formed by the approach of the crura to enter the pons. The transient occurrence of these symptoms indicates that there must have occurred some temporary (probably vascular) enlargement of the growth. The explanation of the absence of *total* paralysis in the lower extremity may indicate that the fibres to that part run nearer to the median border of the crus than do those to the arm. Hemianopsia was presumably not present, because of the tumor being situated too far behind the point of superficial origin of the optic tract to make pressure directly upon it, and because the tumor was too small to produce any very marked "distant effects." The difficulty experienced in swallowing could conceivably be due to indirect involvement of the trunk of the fifth cranial nerve, the glosso-pharyngeal and pneumogastric nerves being so far away as to render their involvement improbable. The dysphagia would then have a sensory and not a motor origin.

Had it been possible to exclude absolutely the reflex origin of the hemiplegia, it would have been difficult, if not impossible, to exclude a lesion of the internal capsule or corpus striatum, in the absence of crossed third or fourth nerve palsy or other symptoms implying involvement of the nerve trunks of the base of the brain.

The points to be extracted from the present case may be of some value in aiding the elucidation of the subjects of cerebral localization and of focal diagnosis of brain tumors.

To sum up the salient features :

From a tumor of the right crus cerebri close to its entrance into the pons Varolii, involving chiefly its outer border and inferior surface, the symptoms produced were left sided facial and corporeal hemiplegia with most marked involvement of the upper extremity ; protrusion of the tongue to the left ; marked contractures in the upper, with none in the lower, extremity ; unaltered sensibility ; transient involvement of the extrinsic ocular muscles ; absence of hemianopsia and of paralysis of the masticatory muscles.

Absolute certainty in diagnosis as to the character of the tumor would have been impossible. The family history and the good state of general health would have almost excluded the suspicion of its being tubercular in character, as would also, to some extent, the clear evidence of the lesion being solitary. Carcinoma would have been excluded by the patient's age, while a specific origin was negatived by the health of the parents and the child's appearance of good general health. By exclusion, then, glioma would be the probable diagnosis.

No operative interference for the removal of the growth could, of course, have been of benefit, nor would the widespread symptoms point to a cortical lesion, unless to one of such extensive area as to have rendered its removal extremely hazardous, if not impossible. Bearing in mind the known danger of the use of anæsthetics in cases of brain-tumor, yet appreciating the importance of correcting an existent peripheral source of irritation, ether was given, but in very small quantity. The good recovery from the effects of both the anæsthesia and operation, and the interval between these and the fatal ending, would indicate that the operative procedures could not have caused death except, possibly indirectly, by increasing in some way the vascularity and, therefore, size of the growth.

## INJURY OF CERVICAL SPINE, WITH LUXATION; REDUCTION; CURE.

BY ALEXANDER W. ACHESON, M.D.,

OF DENISON, TEXAS.

F. J. W., aged fifty-five years, a railroad conductor in the employ of the Missouri, Kansas & Texas Railway, on the 10th of July, 1889, at the town of St. Jo, Texas, was assisting in the side-tracking of some flat cars, the brakeman being at the switch-target, while he stood on the siding awaiting the approach of the cars. As they came toward him he grasped the brake to mount a car, when the staff broke, and he was precipitated, back downward, in front of the train, his head falling between two ties, while the brake-beam caught his body, pushing it toward his head and turned him a complete somersault, leaving him lying on his face. He was found beneath the second car, three trucks having passed over him. When dragged from beneath the train his upper extremities were paralyzed and he insisted that they were cut off, and he would not believe to the contrary until his gloves were removed and his hands held up for his inspection. This occurred at five p. m. Nothing was done for him that day.

On July 11th, at noon, nineteen hours after the accident, I received him at the depot at Denison, and had him transferred to his home, where an examination revealed a slight bruise on the right leg, another unimportant wound on the left shoulder, and a bruise the shape of the letter "J," beginning on the edge of the forehead over the right eye, running backward and around the upper edge of the occiput, and terminating about where it joins the left parietal bone. This bruise was about an inch wide and plainly visible, as the man was bald.

Of the bruises and wounds he complained but little, and said that his suffering was chiefly in his neck, particularly in the back of the neck at the base of the skull, and that there was a sense of constriction in the throat. The posterior aspect of the neck presented no abnormal condition on superficial examination, except a slight swelling about an inch wide at the base of the occiput extending from one mastoid process to the other. The anterior aspect of the neck, however, showed a condition which I do not recollect having ever seen described. It somewhat resembled a combined case of mumps and goitre. The sterno-cleido-mastoid muscles bulged out at the angles of the jaws, and were perfectly flaccid, but there was no swelling present. The pomum Adami was almost on a line with the chin, and the whole front of the neck was unduly prominent.

When this examination was made sensation in the upper extremities had been partially restored; that is, complete paralysis of sensation did not exist. He only complained of a numbness and spoke of his inability to feel a fly crawling on either hand. The ability to move the arms and hands had also returned, but there was no power to turn the head by the muscles of the neck. When asked to turn over, he replied: "Wait until I get my head," and taking it in his hands turned it with his body.

Realizing that this man's neck was dislocated, I directed two assistants to take his feet and make counter-extension, while I took his head, with the fingers of one hand clutched under the eyebrows and those of the other under the occiput; violent extension was resorted to, with oscillation forward and backward, and immediately the head assumed its proper position on top of the spinal column, all the abnormal appearances at once disappeared, while the patient, looking up, remarked with a laugh that the sense of constriction in the throat had left. The head, neck, and shoulders were then encased in a plaster-of-Paris mould, where they remained two weeks. At the expiration of two days the remaining numbness of the arms and hands had disappeared, except a peculiar sensation in the right fingers, which yet remains, and which he describes as a feeling which would be produced by washing in water containing cornmeal. On the day succeeding the reduction the temperature rose to  $103^{\circ}$ , but gradually subsided under treatment.

In the manipulation necessary to accomplish reduction no crepitus was noted, nor was any attempt made to discover any, on account of the danger which might result to the spinal cord from spicula, should any be present.

On the fourth day after the accident there occurred a hemorrhage from the mouth, which was slight in extent. This recurred on the fifth day, and again on the sixth, when it was quite severe. It proceeded from a wound in the floor of the mouth which had been made by a tooth in the upper jaw. Only one tooth was present in the upper jaw—the right first molar—and it was worn down to a sharp edge on one side and

broken off on the other. At the time of the accident so much pressure was brought to bear on the patient's head, with the jaw-bone against the breast, that the lower jaw had been forced past the upper, until the tooth penetrated the tissues beneath the tongue.

At the end of two weeks the plaster apparatus was exchanged for one of sole leather, which was neater, lighter, and so constructed as to permit the patient to sleep upon the side.

At the end of a month he was able to sit up and move about the room, even going into the yard, but in doing so used artificial support to the head. In rising from the recumbent position he has to take his head in his hands. While sitting up he leans his head against a board attached to the back of the chair, and while walking leans his head forward on his fist which grasps his beard. To assist his movements an apparatus was constructed of the nature of a steel backbone with a crutch head on the upper end. This was fastened around the waist by a belt, and straps, similar to those soldiers use to carry their knapsacks, bound it to the upper part of the chest and steadied the head upon the spinal column. Continuous sitting in the erect position, however, developed a tenderness which degenerated into a pain, so that at the end of one or two hours he was compelled to lie down again. While recumbent there was no pain except upon pressure, and that limited to the spinous process of the third cervical vertebra. About the first of September, or fifty days after the accident, he began to suffer excruciating pain at the approach of a weather change. This pain, though most severe in the neck, was not limited to it, but in severe storms extended to other joints.

About this time also the tissues on the back of the neck began to assume a mottled appearance. The circulation became very sluggish, and most noticeably so about an inch to the right of the median line, on a level with the third cervical vertebra. He spoke of a gritting or clicking with every attempt to turn the head, and an exquisite pain if the head dropped forward beyond a certain point. During the next ten days the circulation improved somewhat, yet it is not certain that some tissue necrosis may not yet be encountered.

At the present writing, 107 days after the accident, his condition is stationary. The accompanying sketch is taken from a photographic side view of the patient: The bulge on the back of the neck is plainly apparent, showing that reduction did not reduce all the injured parts to their normal situation. His neck presents the appearance of a bent knitting-needle which has been straightened, that is, it still has a kink in it.

This condition may be due either to a slight displacement of one of the cervical vertebrae which was not reduced when extension was resorted to, or may have been caused by the crushing of the body of one of the

vertebræ, or the fracture of one of the vertebræ immediately posterior to its body. Considering all the points presented in this interesting case, my belief is that there were present both dislocation and fracture.



Another point of interest is the alteration of voice. His voice is strong, but is such as is produced by what is popularly known as "talking down in his throat." Examination of the fauces reveals nothing which will explain this, nor was there at any time any complaint of injury to the larynx. When we consider how little of the tonsils have to be removed in order to alter the voice, it may be explained by some alteration in the size or shape of the pharyngeal cavity too insignificant to be detected.

The only remaining evidence of the paralysis is limited to the fingers of the right hand, which he says feel as though gravel were covering any article he touches.

The steel backbone referred to failing to give him relief from pain, a jury-mast was constructed, which he is now wearing with some satisfaction.

The mottled appearance spoken of has entirely disappeared. The suffering at the approach of weather changes yet continues.

## REVIEWS.

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LEHRBUCH DER ALLGEMEINEN UND SPECIELLEN PATHOLOGISCHEN ANATOMIE FÜR AERZTE UND STUDIRENDE. VON DR. ERNST ZIEGLER, Professor der pathologischen Anatomie und der allgemeinen Pathologie an der Universität Freiburg in Baden. Sechste verbesserte und theilweise neu bearbeitete Auflage. Erster Band. ALLGEMEINE PATHOLOGISCHE ANATOMIE UND PATHOGENESE.

TEXT-BOOK OF GENERAL AND SPECIAL PATHOLOGICAL ANATOMY FOR PHYSICIANS AND STUDENTS. By DR. ERNST ZIEGLER, Professor of Pathological Anatomy and General Pathology at the University of Freiburg in Baden. Sixth Edition, corrected and in part rewritten. Vol. I. GENERAL PATHOLOGICAL ANATOMY AND PATHOGENESIS. 8vo., pp. xiv., 567. With 343 illustrations and a chromo-lithographic plate. Jena: Gustav Fischer, 1889.

THE appearance after so short an interval as thirty months of the first volume of a new edition of Ziegler's well-known text-book of pathology betokens continuance of a popularity almost unprecedented among medical works, necessitating the issue of six editions in the surprisingly short space of eight years. No one familiar with the book can fail to discern the source of this popularity, for in the clear typography, made easy for reference by judicious interspersions of black-faced type, in the use of fine print for the discussion of hypotheses, in the wealth of illustration, and in the ample bibliography, we have features which appeal alike to the student and the specialist.

In the volume before us, comprising that portion of the work devoted to general pathology and pathogenesis, many additions have been necessary to keep the book abreast of the rapid advances made during the past two years. To accommodate these without unduly increasing the size of the volume, condensation of some of the material has been attempted and a few unimportant paragraphs have been omitted. Even with these curtailments the book has grown by seventy pages, and the illustrations have been increased from 307 to 343.

As is but natural, the most radical changes are to be found in the chapter on the bacteria and their relation to disease, in which the most recent work receives recognition, though not always the support of the author. Perhaps nothing in general pathology excites greater interest at the present moment than the problems connected with the explanation of the phenomena of recovery from infectious disease, protective inoculation, and immunity. In the discussion of this subject objection is raised to the theory of Pasteur and Klebs that recovery and immunity are due to the exhaustion or absence of certain substances in the body essential to the growth of the pathogenic bacteria, and Ziegler lends the

weight of his opinion to those theories based upon the hypothesis of the production of chemical substances which prevent the development of the germs. This opinion is supported by reference to the work of Salmon, Pasteur, Roux, Chamberland, and others, who obtained immunity from certain infectious diseases experimentally by inoculation of chemical substances gained by distillation from cultures of the infectious bacteria, and by the discovery by Emmerich, di Mattei, and Rogowitsch, that pathogenic bacteria introduced into the flesh of animals protected by previous inoculation quickly die and are incapable of development. These protective chemical substances are believed by Ziegler to result from changes in the tissues, and not to be produced by the micro-organisms themselves. In this connection, also, the recent discovery by Nuttall, Flügge, and Buchner of the germicidal properties of blood-serum is referred to. In company with the majority of pathologists, Ziegler, while admitting the possibility of its occasional occurrence, finds much in the way of the unqualified acceptance of the views of Metschnikoff regarding phagocytosis, and practically eliminates it from any appreciable agency in the destruction of pathogenic bacteria in the body.

Besides the discussion of this subject, which is in great part new in the present edition, paragraphs have been inserted treating of the effects of carbon dioxide and light on bacteria, and of the transmission of disease from mother to fœtus. At the end of the volume, what was before but a cursory notice in fine print of the claims of the plasmodium malariae, has, in the present edition, expanded into a very sizable paragraph in the body of the text.

Additions are also noticeable in the chapter on monstrosities, so full in the previous edition, making it now one of the most complete catalogues of these strange anomalies with which we are acquainted.

As an introduction to the chapter on retrograde metamorphosis, a paragraph relating to death of the organism as a whole has been inserted, in which the signs of death, their causes, time of onset, etc., are discussed, as are also some of the points of differentiation of death from trance and allied states.

The sections treating of inflammation and suppuration, thrombosis, œdema, and pigmentation have all undergone slight modification, and a paragraph has been added describing the pathology of that most curious condition—myxœdema.

To those who use the work frequently as a key to the literature, the rearrangement and extension of the bibliography will be among the most welcome of the improvements in the present edition. J. S. E.

CYCLOPÆDIA OF THE DISEASES OF CHILDREN, MEDICAL AND SURGICAL. THE ARTICLES WRITTEN ESPECIALLY FOR THE WORK BY AMERICAN, BRITISH, AND CANADIAN AUTHORS. Edited by JOHN M. KEATING, M.D. Vol. ii. Illustrated. Svo., pp. xii., 1066. Philadelphia: J. B. Lippincott Company, 1889.

THE second volume begins with the diseases of the skin, which are discussed by a number of authors. The article on "Eczema," by Van Harlingen, as treating of the most common form of skin trouble, de-



serves especial mention. The author takes the middle road, as far as local and general origin of the disease is concerned; he says, "of course, no stress is to be laid upon a hereditary or acquired taint, as in syphilis," and, in accordance with these views, his treatment is both local and general. It sounds strange to hear a dermatologist say that "eczema is liable to be confounded with pediculosis capillitii," evidently permitting us to infer that eczema, as an entity, is entirely different from the manifestations produced by pediculi capitis. A fine practical point is made by the publishing of the formula and directions for making Hebra's diachylon ointment, the essential principle of which consists in the hydration of the litharge powder. Whoever has had occasion to see this ointment will agree with the author that most apothecaries dispense a "tough and stringy mass" or a "slimy fluid."

Dermatology is by no means what Hebra tried to impress his hearers that it ought to be: "a science like geology or botany." Nowhere does this become more apparent than in a series of articles written by a number of authors. For many reasons it is a pity that the simple nomenclature which had been adopted is again being disturbed, since it is always the principal source of clearness. Naturally enough dermatology has to conform to the discoveries made in pathology, but it does seem to the impartial observer that, since the death of Hebra, who seemed, *facile princeps*, The Pope of dermatology, many innovations have been introduced which will eventually do as much harm as good. In one sense, nearly all the dermatological articles are disappointing—in that they do not refer especially to the manifestations as they present themselves in children. While a comparison between the adult and infantile forms is nearly always made, it would, in our judgment, have been better to have laid more stress upon the peculiar eruptions in children and less on those in the adult.

In the article on "Scrofulosis" by Henry Ashby, we find a careful *résumé* of the most important things that have been done in connection with the subject. He does not believe in the identity of scrofulosis and tuberculosis; he does not agree with Unna as to impetigo, and does not mention the remarkable case of Demme as to ozaena, and, although he admits the possibility of a tubercular impetigo, he asks for an explanation "how enlarged glands following cutting teeth, or due to the irritation of a carious tooth, become tubercular." The whole article, however, is full of progress, and the distinct tendency is to reduce the term scrofula to a clinical one, not to consider the disease an entity or characterized by anything specific. Cod-liver oil and the iodine preparations are the principal remedies recommended, and much stress is laid upon the local treatment of the glandular lesions.

The article on "Tuberculosis," by A. Jacobi, is full and at the same time concise, like all the articles by this distinguished author. Then follow "Syphilis," by Abner Post, and "Rachitis," by Thomas Barlow and Judson S. Bury. Both of these articles are models in their way. Whatever Barlow would have to say in connection with rachitis would always command the greatest respect, and we are especially glad that he has written the article on "Scurvy" in children. It is astonishing that Barlow has no personal knowledge of Kassowitz's treatment, especially as nearly all who have written upon the subject regard this method as almost a specific in laryngo-spasms.

In the article on "Cretinism," Bury gives a most excellent account of

the condition and its relation to other diseases, and comes to the conclusion that, probably, "sporadic and endemic cretinism, myxœdema and the cachexia strumipriva are identical or closely allied diseases, depending upon diminished or lost function of the thyroid gland."

Next we come to a most remarkable paper on the "Urinary Diatheses," by Milner Fothergill, of which the editor says in a foot-note that "the manuscript was received a few days after the cable announced the death of its author. It was the last work of this distinguished writer." Oxaluria, phosphaturia and lithuria, the author claims, received more study a half-century ago, and he prophesies a revival "less than half a century hence." The first two are treated of in a very cursory way, so that it is but natural to infer that the remark was intended especially for the latter condition, which would correspond with the views that were held by the author and a great number of writers belonging to the present age.

To one who does not believe in the universal presence of gout as an etiological factor this article is of special interest, because of the man who wrote it and because of its application to children. It is difficult to arrive at a conclusion concerning its intrinsic value; the fascinating, virile style, the almost dogmatic statement of unsettled facts, and the conclusions, drawn with the incisiveness of a man who has confidence in what he is saying, make one waver in the position taken in regard to gout. After all, the production of so many diseases by gout is more a scientific creed than a scientific doctrine. In reading, as we do in this article, of the intimate connection of scrofula (struma), the neurotic temperament, reversion, biliousness and chronic Bright's disease and gout, not to mention a great many other things that are brought into direct or indirect relation, the most natural conclusion that will be arrived at will be that a great many symptomatic combinations have been thrown together as due to a common cause. But one step further will convince us that the term gout is simply a combination of symptoms, the cause for which has not, as yet, been established, at least not in such a way as to be free from criticism. It is one thing to accept an increase in uric acid in the urine as the only necessary qualification, but it is another matter to find, in looking back a step, that uric acid is increased as a result of something going on in the economy. In this direction Fothergill, in common with those believing with him, takes ground which is not sufficiently based upon physiological and pathological investigation. Clinical results are not sufficient to draw such wide-extending inferences as has been done; more especially is this the case when we find that they are not admitted by so many observers.

Part III. of the work is devoted to diseases of the respiratory tract, and begins with the diseases of the nose. Among these is a very practical paper on "Epistaxis," by E. Carroll Morgan, in which is found a historical development of the subject and a thorough consideration of nose-bleed as a symptom of various conditions and diseases. The articles by Delavan on "Foreign Bodies and Tumors" are such as would be expected from this conscientious observer and writer. Bosworth contributes "Congenital Syphilis, Croupous and Purulent Rhinitis." He is an adherent to the non-identity of croup and diphtheria, and he is frank in stating that he "believes" croup to be a disease due to a germ; that this germ produces changes in the blood, followed by hyperinosis, and that the membrane is a result of this hyperinosis. As he says: "A

diphtheritic exudation we regard as local evidence of the general disease which we term diphtheria, and so a croupous exudation is to be regarded as the local evidence of a general disease to which we have as yet given no definite name." But the indefinite quantity, the hyperinosis, is produced by a germ, just as the "general disease" in diphtheria.

In "Diseases and Injuries of the Pharynx," by Ingalls, we find the etiology of acute pharyngitis to be catching cold, the scrofulous or rheumatic diathesis, and that it is sometimes epidemic. Membranous sore-throat (croupous pharyngitis, herpetic sore-throat, aphthous sore-throat—all of which are synonymous, according to the author), we are told, is not dangerous except by extension, or by its occasionally "terminating in diphtheria, which may be serious." It may also be attended by paralysis, and "occasionally" attends syphilitic and tubercular sore-throat. If the specialist cannot distinguish between so many different forms of pharyngitis, what is to become of the poor "common practitioner?" The whole interesting subject of pharyngitis in the acute exanthemata is discussed in a little over a page. The discussion on the nature of scarlatinal sore-throat is not mentioned; the etiology of this condition is "the poison of scarlatina." Verily, the author must be a specialist! On the other hand, the description of the follicular forms is most excellent, and that of retro-pharyngeal abscess contains all that need be known.

"Diseases of the Tonsils" are described by Beverley Robinson. Of the acute forms there are: 1. Acute superficial or erythematous tonsillitis; 2. Acute follicular or lacunar tonsillitis; 3. Deep or parenchymatous tonsillitis. The distinguishing feature of the lacunar form, or follicular angina, is the absence of albuminuria. The only chronic form mentioned is "chronic enlargement of the tonsils." The tubercular and leptothricial forms of angina are not described; the croupous, diphtheritic, and syphilitic forms we are expected to find under a different heading. The author has written so well upon the subjects he has described, the chronic form especially, that, for the sake of completeness, it is a pity he has not taken up all the diseases that are found upon the tonsils.

"Spasmodic Laryngitis, Pseudo-membranous Laryngitis, and Intubation" are discussed by Northrup. The article upon intubation is of especial value, full of hints to the beginner and good points to those that have practised the operation. The article upon "Tracheotomy," by Wharton, is very complete, and following the article on intubation, as it does, a comparison between the two as to results and otherwise is left to the reader.

Minot has written the articles on "Atelectasis" and "Croupous Pneumonia." The latter disease is looked upon as an infectious non-contagious malady. Minot contributes a report of a local endemic in which the infection is claimed to have arisen from a defective "set basin." The duration of the disease varies, "seldom lasting longer than ten days, and often completed in five or six." The author takes the view that apex pneumonia is not more likely to be accompanied by cerebral symptoms than any other form. The treatment is expectant; in regard to aconite, we quote: "I have frequently prescribed it, but I have never been able to satisfy myself that it is of any use; and, as it is a very depressing medicine when given in a full dose, it is not a con-

venient one to handle." Of digitalis the following is said: "In my opinion its value has been overestimated."

The articles on "Bronchitis" and "Broncho-pneumonia," by F. Gordon Morrill, are carefully prepared, the latter especially showing a great amount of diligence, in that new statistical tables are introduced. The good, old-fashioned poultice "should not be countenanced," although no especially good reasons are given for this discountenancing. On the other hand, no especially good reasons can be given for not discountenancing it, except, possibly, that those who have most to do with catarrhal pneumonia find that the poultice-jacket is a valuable aid in treatment. Scientifically, we cannot see why a poultice should do good. Possibly, when we know more about the etiology of these diseases than is expressed in "catching cold," it will be seen why so careful an observer as West, and a great many others, insist, empirically, it is true, upon the poultice.

"Emphysema," "Hay Fever," and "Asthma" are briefly, but excellently, discussed in three articles by F. C. Shattuck. In reflex asthma the ubiquitous (etiologically) intestinal worm is "also set down as a cause." A most interesting point is made in regard to the relation of urticaria (and skin troubles) to asthma. In the article on "Phthisis," by Jacobi, his therapeutic resources must command the admiration of everyone. "Colds, in spite of the modern superciliousness of some who deny any pathological change unless the exclusive work of bacteria, will always hold their places in nosology." It may not be out of place to suggest that doubts were expressed upon this subject long before any "modern superciliousness" existed, and certainly before the discovery of the modern bacteria. A great deal of good would be done if an unbiassed, unprejudiced examination could be made of this whole subject of "catching cold." Assertions do not prove anything, even when coming from the highest authorities. The day has come when croupous pneumonia, the disease which *par excellence* was attributed to catching cold, is no longer referred to this mystic "reflex" act. Does it not seem possible that our logic may have been a little at fault, as well as our observation, in regard to other diseases?

"Pleurisy," by Whittier and Vickery, and "Empyema," by Cabot, are both very valuable articles; the latter especially so, on account of the directions for operating.

In Part IV. the first larger article is on "Congenital Affections of the Heart," by Osler, and we find here the same good, conscientious work that characterizes this well-known author.

In "Endocarditis," Cheadle has given us another valuable contribution. Here the connection between rheumatism, chorea, and endocarditis is as conclusively proven as can be done with statistical material. The views expressed regarding the significance of heart-murmurs are certainly very interesting in regard to their origin; and the section on prognosis is valuable, as coming from so well known a clinician. The section on treatment is advanced as to the grounds taken in regard to salicylate of soda. Of the remaining chapters especial notice should be taken of the one on "Valvular Disease," by Sanson, who is well known as the author of a small, but exceedingly interesting, work on *Valvular Diseases of the Heart*. Very few of the articles have such direct application to children as this one, so that its value is doubly enhanced by this treatment of the subject.

Part V. treats of the diseases of the mouth, the tongue and the jaws,

and begins with an article on the "Diseases and Care of the Teeth," by Darby. The time and order of eruption of the temporary set are rather interesting, as is usually the case when dentists write upon this subject. But the article is an excellent and practical one in every respect. Roswell Park follows with the "Congenital Defects and Deformities of the Face, Lips, Mouth, Tongue and Jaws," in a very short article. We hope to see this whole subject treated of monographically at some future time.

"Diseases of the Mouth," by Allechin, contains all that need be known upon the subject. It is a noticeable fact that the German authorities are not mentioned very often. Not that this can be looked upon as a fault, since every author has the right to draw his illustrations from whatever source he may think best. It seems, however, that Bohn could have been utilized with good results, and, at least, being a standard author, some of his views as to stomatitis aphthosa and stomatitis ulcerosa might have been referred to.

A special feature, and one of great importance, is to be found at the end of each volume—an excellent index. It is not necessary to dilate upon this valuable portion of the work; no one knows how to appreciate this better than those who have been condemned to look through a whole book in order to find one small point.

A *résumé* of all the articles will induce anyone to believe that he is dealing with a most noteworthy contribution to our knowledge. Even the weakest article contains something of interest and, in the way of a few histories, something new. Some articles, written by men of deservedly great reputation in their branches, are weakened, probably on account of the audience they suppose themselves to be talking to. Some articles are shortened, in order to avoid repetitions and to conform to the space limit that must, of necessity, be insisted upon in every large work when written by a great number of authors. If the succeeding volumes come up to the standard which is marked in the first two, the work will be the most valuable ever written on diseases of children. The names of those who will contribute are a sufficient guarantee that this will be the case. We would be derelict if thanks were not expressed to the publishers for the exceedingly liberal outfit the book has received in every direction. The print and paper are very good, the illustrations are far above the average, and very few mistakes have occurred in printing.

F. F.

#### GOUT AND ITS RELATIONS TO DISEASES OF THE LIVER AND KIDNEYS.

By ROBSON ROOSE, M.D., LL.D., F.C.S., Fellow of the Royal College of Physicians in Edinburgh, Sixth Edition. 8vo., pp. xii., 179. London: H. K. Lewis, 1889.

THE issuance of six editions of any book, and especially within so brief a time as four years, means that a definite place has been gained in professional estimation, and criticism must be governed accordingly. The author states in his preface, that this edition is not a mere reprint, but that he has, as before, added the results of his later experience and study, together with such observations of others as seemed pertinent. The subject is thoroughly treated, and from a practical standpoint. The

author still adheres to the views expressed, especially by Murchison, that imperfect functioning of the liver is the chief cause of overproduction of uric acid.

The theory of the nervous origin of the affection is discussed at length, but the conclusion is again reached that nervous disorder is the effect of the *materies peccans*. Kidney complications are regarded as almost exclusively secondary; and while their great frequency is recognized, temporary albuminuria, even if accompanied with tube casts, is not considered as evidence of organic disease of the kidney. Persistence or frequent recurrence of this condition is, however, recognized as of serious import. Treatment is judiciously made to centre on the hygienic management of the diathesis. Diet is to be carefully regulated quantitatively as well as qualitatively, and an exclusive regimen of any kind is wisely deprecated. A moderate amount of meat is allowed, and fats are to be used in place of carbohydrates as far as possible. Saccharin is recommended as a valuable substitute for sugar. Balneology is discussed at some length, with especial reference to British resorts; and in this connection the great value of water, *per se*, and especially hot water, as a drink for gouty subjects is fully recognized. The medicinal treatment advised does not call for especial comment. The book is furnished with a good index.

S. S. C.

A HAND-BOOK OF OBSTETRICAL NURSING, FOR NURSES, STUDENTS, AND MOTHERS; COMPRISING THE COURSE OF INSTRUCTION IN OBSTETRICAL NURSING GIVEN TO THE PUPILS OF THE TRAINING-SCHOOL FOR NURSES CONNECTED WITH THE WOMAN'S HOSPITAL OF PHILADELPHIA. By ANNA M. FULLERTON, M.D., Demonstrator of Obstetrics in the Woman's Medical College of Pennsylvania; Physician-in-charge and Obstetrician and Gynecologist to the Woman's Hospital of Philadelphia, and Superintendent of its Nurse Training-school. 12mo., pp. 214. Philadelphia: P. Blakiston, Son and Company, 1890.

WITH the introduction of antiseptic obstetrics, under which so much has been accomplished in reducing the death-rate of lying-in hospitals, it became absolutely essential that women of a better grade should be encouraged to become nurses; that the candidates for instruction should be young and healthy, and that they should have a special training by lectures and at the bedside, to fit them for carrying out properly and understandingly the directions of the obstetrician in charge. What is to be learned in a maternity training-school is the way to nurse as a profession, so that the woman may make herself acceptable to both physician and patient in a private house after she shall have graduated. Under the old regime the "monthly nurse" was generally a middle-aged woman, frequently a widow, often too fat to be active, and had picked up an imperfect knowledge from case to case. Such women may still answer in the homes of poverty, where one neighbor often nurses another; but among refined and educated mothers there is a growing desire for a refined and educated nurse—one that not only understands her business, but can be in some degree a pleasant companion in the sick-room. To supplement the instruction of the training-school as a text-book, and to

keep the pupil in remembrance of what she has been taught, is the object of Dr. Fullerton's hand-book. It does not aim to make a physician of the nurse, although it does of necessity teach her a certain measure of emergency obstetrics, so that she may be able to render valuable aid in event of a fetal extrusion when the attending accoucheur is absent. The scope of the volume will be best shown by its chapter headings, viz.: Signs of pregnancy; management of accidents of labor; preparations for the labor; signs of its approach and the process of labor; duties of the nurse during labor; and accidents and emergencies of labor; care of the newborn infant; management of the lying-in; characteristics of infancy in health and disease; and the ailments of early infancy. The book is well printed, with marginal notations, fairly illustrated, and is calculated to be of useful service both to the nurse and the medical attendant. We have read it with interest, and can recommend it as a valuable manual.

R. P. H.

ON BRONCHIAL ASTHMA: ITS PATHOLOGY AND TREATMENT. By J. B. BERKART, M.D., late Physician to the City of London Hospital for Diseases of the Chest. Second Edition. 8vo., pp. 220. London: J. & A. Churchill, 1889.

THIS is an important addition to the clinical literature of asthma, but is a disappointment to those who regard the pathology of this disease settled in favor of the spasmodic or neurotic theory. The author concludes from a wide experience, both of a hospital and private nature, that the spasm of this disease is a secondary product, and is dependent on a croupous or fibrinous exudation in the bronchial tubes. The peculiar sputum which emanates from this deposit is looked upon by him as a point of great diagnostic value.

A rational pathology requires us to hold ideas, however, which seek to unify all the known phenomena of a disease. Does the exudation theory subserve this end? Does it account for the sudden beginning and subsidence of asthma? Does it account for the total absence of expectoration even in many severe seizures? Does it explain why nervous diseases are frequently transformed into asthma, and why asthma sometimes disappears in various forms of nervous disease? Does it help us to understand why an attack of asthma is almost universally and instantaneously amenable to agents like stramonium, nitrites, etc., which act on the disease exclusively through the nervous system?

Evidently it does not, and therefore must be regarded as a weak-working hypothesis, in so far as its utility to therapeutics is concerned. This view is also confirmed by the fact that the book suggests no new line of treatment which is specially calculated to meet this peculiar pathological condition. The old and well-tried remedies—such as rest, climate, diet, inhalations, expectorants, stimulants, electricity, pneumatic treatment, etc.—are strongly recommended; and notwithstanding the defective connection between the theory and the practice of the author, it must be admitted that the systematic course of therapeutics which is advocated is excellent, and will be of great value to those who are interested in the study of asthma.

T. J. M.

A GUIDE TO THE DISEASES OF CHILDREN. By JAMES FREDERIC GOODHART, M.D., F.R.C.P. Rearranged, revised, and edited by LOUIS STARR, M.D. Second American, from the Third English Edition. 8vo., pp. 772. Philadelphia: P. Blakiston, Son & Co., 1889.

THE second American edition of this most excellent guide appears thoroughly revised by author and editor, and enriched with a larger part than formerly of the suggestions and views of the latter. The brackets which enclosed Dr. Starr's contributions in the former editions have been removed; he has rearranged the book, and added clinical charts which illustrate typical cases. The result is a decided gain in attractiveness and value, and the book is the best "guide," as Dr. Goodhart modestly styles it, to the diseases of which it treats available in English medical literature. The author's work is especially valuable for the clearly drawn pictures it affords of disease, which are so impressive to the student.

Adequate treatment is given to that most important of pædiatric topics, the feeding of the child. Sterilized milk has ample justice done it; artificial digestive agents are of recognized value, and children's foods are given their proper sphere, as adjuvants of milk-feeding, not as substitutes for milk.

In the treatment of intestinal disorders the modern theory of anti-septic medication receives full endorsement; our experience has led us to include salol among those drugs mentioned as being, next to calomel, the most convenient and efficient of all. We have also found washing out the stomach early in intestinal inflammation the most efficient way of checking persistent vomiting, and in hospitals diapers should be thoroughly disinfected during the prevalence of diarrhoeas.

The modern methods of treating whooping-cough are described and approved, antipyrin having been found of decided value.

Two honored superstitions of children's practice receive scientific and adverse criticism: one that teething is the cause of all ills at a certain period; the other that symptoms not otherwise explicable indicate the presence of intestinal parasites. It is the child's general nervous instability depending upon its period of development which favors disease; and only the passage of worms or their ova justifies a diagnosis of their presence.

The book abounds in useful formulæ, and its present improved edition will be welcomed by student and practitioner alike as furnishing a reliable basis for pædiatric knowledge, from which original work or more extended reading may proceed.

E. P. D.



# PROGRESS OF MEDICAL SCIENCE.

## THERAPEUTICS.

UNDER THE CHARGE OF

FRANCIS H. WILLIAMS, M.D.,

ASSISTANT PROFESSOR OF THERAPEUTICS IN HARVARD UNIVERSITY.

### THE REPORT OF THE HYDERABAD CHLOROFORM COMMISSION.

The second Hyderabad Chloroform Commission's report has just appeared in *The Lancet* of January 18th, and on account of the importance of the subject cannot fail to receive marked attention. The experiments, which were performed under the supervision of DR. LAUDER BRUNTON, were of two kinds, those of one group being made without recording apparatus, and being intended to ascertain what influence is exerted by various conditions upon the relation between the stoppage of heart and of respiration, and the limits within which artificial respiration and other means of resuscitation are useful. The second group consisted of experiments with recording apparatus, and were made for the purpose of ascertaining the effect of various conditions upon the heart and blood pressure. In the first group chloroform was given in all sorts of ways—alone or with morphine, atropine, and strychnine—to animals, healthy and diseased, fasting or replete. The result was invariable: in every case the respiration stopped before the heart, sometimes a long time before it. But the effect of partial asphyxia in causing the heart to stop very soon after the respiration is deserving of particular notice.

The second group of experiments on heart and blood pressure was made with apparatus arranged in such a way that the whole experiment could be recorded from beginning to end in such a compass as to admit of photographic reproduction in its entirety. This was managed by recording the general blood pressure on a slowly revolving drum, and taking at intervals a tracing on a second drum, revolving with sufficient rapidity to show each beat of the pulse. About one hundred and fifty experiments were made in this way, and the influence of everything that seemed likely to affect the blood pressure during chloroform narcosis was ascertained. Particular attention was directed to the production of shock or syncope, and to the

effect of chloroform itself on the heart and blood pressure in healthy animals, and also in cases where fatty degeneration of the heart and other organs had been produced by the previous administration of phosphorus. The results of these experiments were unexpected. It was found to be exceedingly difficult to affect the heart reflexly, and recourse was therefore had to direct stimulation of the vagus, by which the heart could be slowed or stopped completely. Instead of this causing the death of the animal, however, it appeared rather to be a safeguard, preventing the anæsthetic from being conveyed in too great quantities to the nerve centres.

From the report, it will be seen that the discrepancy between the views of different schools arises from the fact that sufficient consideration has not been given to the conditions under which the chloroform is given. Although it may paralyze the heart if applied directly to it, yet this condition does not occur in practice, for here it is neither applied to that organ nor yet is it blown forcibly into the lungs. It is inhaled by the patient, and when this is the case it stops the respiration before the heart. The practical outcome of the research would appear to be that deaths from chloroform are not inevitable; that they are therefore preventable, and by due care in its administration they may be with certainty avoided.

The following are the practical conclusions in detail which the Commission think may fairly be deduced from their experiments :

1. The recumbent position on the back and absolute freedom of respiration are essential.

2. If during the operation the recumbent position on the back cannot, from any cause, be maintained during chloroform administration, the utmost attention to the respiration is necessary to prevent asphyxia or an overdose. If there is any doubt whatever about the state of the respiration, the patient should be at once restored to the recumbent position on the back.

3. To insure absolute freedom of respiration, tight clothing of every kind, either on the neck, chest, or abdomen, is to be strictly avoided; and no assistants or bystanders should be allowed to exert pressure on any part of the patient's thorax or abdomen, even though the patient be struggling violently. If struggling does occur, it is always possible to hold the patient down by pressure on the shoulders, pelvis, or legs without doing anything which can by any possibility interfere with the free movements of respiration.

4. An apparatus is not essential, and ought not to be used, as, being made to fit the face, it must tend to produce a certain amount of asphyxia. Moreover, it is apt to take up part of the attention which is required elsewhere. In short, no matter how it is made, it introduces an element of danger into the administration. A convenient form of inhaler is an open cone or cap with a little absorbent cotton inside at the apex.

5. At the commencement of inhalation care should be taken, by not holding the cap too close over the mouth and nose, to avoid exciting struggling, or holding the breath. If struggling or holding the breath does occur, great care is necessary to avoid an overdose during the deep inspirations which follow. When quiet breathing is insured as the patient begins to go over, there is no reason why the inhaler should not be applied close to the face; and all that is then necessary is to watch the cornea and to see that the respiration is not interfered with.

6. In children, crying insures free admission of chloroform into the lungs: but as struggling and holding the breath can hardly be avoided, and one or two whiffs of chloroform may be sufficient to produce complete insensibility, they should always be allowed to inhale a little fresh air during the first deep inspirations which follow. In many struggling persons, but especially in children, it is essential to remove the inhaler after the first or second deep inspiration, as enough chloroform may have been inhaled to produce deep anæsthesia, and this may only appear, or may deepen, after the chloroform is stopped. Struggling is best avoided in adults by making them blow out hard after each inspiration during the inhalation.

7. The patient is, as a rule, anæsthetized and ready for the operation to be commenced when unconscious winking is no longer produced by touching the surface of the eye with the tip of the finger. The anæsthetic should never, under any circumstances, be pushed till the respiration stops; but when once the cornea is insensitive, the patient should be kept gently under by occasional inhalations, and not be allowed to come out and renew the stage of struggling and resistance.

8. As a rule, no operation should be commenced until the patient is fully under the influence of the anæsthetic, so as to avoid all chance of death from surgical shock or fright.

9. The administrator should be guided as to the effect entirely by the respiration. His only object, while producing anæsthesia, is to see that the respiration is not interfered with.

10. If possible, the patient's chest and abdomen should be exposed during chloroform inhalation, so that the respiratory movements can be seen by the administrator. If anything interferes with the respiration in any way, however slightly, even if this occurs at the very commencement of the administration, if breath is held, or if there is stertor, the inhalation should be stopped until the breathing is natural again. This may sometimes create delay and inconvenience with inexperienced administrators, but experience will make any administrator so familiar with the respiratory functions under chloroform that he will in a short time know almost by intuition whether anything is going wrong, and be able to put it right without delay before any danger arises.

11. If the breathing becomes embarrassed, the lower jaw should be pulled, or pushed from behind the angles, forward, so that the lower teeth protrude in front of the upper. This raises the epiglottis and frees the larynx. At the same time it is well to assist the respiration artificially until the embarrassment passes off.

12. If by any accident the respiration stops, artificial respiration should be commenced at once, while an assistant lowers the head and draws forward the tongue with catch-forceps, by Howard's method, assisted by compression and relaxation of the thoracic walls. Artificial respiration should be continued until there is no doubt whatever that natural respiration is completely reëstablished.

13. A small dose of morphine may be injected subcutaneously before chloroform inhalation, as it helps to keep the patient in a state of anæsthesia in prolonged operations. There is nothing to show that atropine does any

good in connection with the administration of chloroform, and it may do a very great deal of harm.

14. Alcohol may be given with advantage before operations under chloroform, provided it does not cause excitement, and merely has the effect of giving a patient confidence and steadying the circulation.

The Commission has no doubt whatever that if the above rules be followed, chloroform may be given in any case requiring an operation with perfect ease and absolute safety, so as to do good without the risk of evil.

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#### A CLINICAL STUDY OF THE DIURETIC ACTION OF THEOBROMINE.

Until the researches of Schröder pointed out the diuretic action of caffeine and theobromine, we had no means of exciting the secretion of the kidneys in a way corresponding to the action of pilocarpine on the sweat and salivary glands. The two cases are not wholly parallel, for pilocarpine exerts its action on the glands through the nervous system, whereas caffeine and theobromine increase the renal secretions through an influence on the renal epithelium. Caffeine is not limited in its physiological effects to the kidneys, for it acts upon the nervous and circulatory systems as well. Upon the kidneys its effect may thus be a double one: first, to increase the amount of urine by exciting the renal epithelium, or, by contracting the renal vessels, diminish the blood supply and thus lessen the amount of urine. It is possible to counteract the stimulation of the vaso-motor centres and prevent the narrowing of the bloodvessels by the administration of chloral or paraldehyde: this may prove a dangerous procedure, as too large amounts are sometimes required.

DR. CHRISTIAN GRAM has made careful clinical observations with caffeine and paraldehyde, with theobromine, and with a compound of theobromine with sodium and salicylic acid, upon several cases, chiefly of chronic renal and cardiac disease.

The combination of paraldehyde with caffeine gave excellent results as a diuretic, thus affording a clinical confirmation of what v. Schröder has demonstrated physiologically. There are, however, certain drawbacks which make this method impractical. Paraldehyde is not well borne; it destroys the patient's appetite and may prove to be even dangerous.

Theobromine alone gave good results as a diuretic, but difficulties were also encountered here. Its insolubility made its absorption slow or impossible, and it readily excited vomiting. The next step was to find a soluble compound of theobromine, which was realized in the theobromine-sodio-salicylic compound: this contains almost exactly fifty per cent. of theobromine, dissolves in half its weight of warm water, and remains in solution on cooling. Theobromine requires 1000 parts of water to dissolve one part. The compound was always well borne, even by weak patients, and was readily absorbed. Theobromine is the active ingredient, since it gives rise to copious diuresis when it is absorbed, as indicated by its presence in the urine. The salicylate of sodium in this compound is probably not responsible for the diuretic action, since no diuresis follows the administration of salicylate of sodium when this is given first, while abundant flow of urine occurs after the administration of the compound with theobromine. Theobromine-sodio-

salicylate is harmless, and the usual dose for twenty-four hours is about a drachm and a half, given in single doses of fifteen grains each.—*Therapeutische Monatshefte*, January, 1890.

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#### DIURETIN, A NEW DIURETIC.

The diuretic action of caffeine being open to the objection that it may be accompanied by sleeplessness and restlessness, it has occurred to DR. GRAM, of Copenhagen, to employ a sodio-salicylic compound of theobromine, to which he has given the name of "diuretin." Notwithstanding the strong resemblances between theobromine and caffeine, diuretin is alleged to produce strong diuretic action without in any way affecting the central nervous system, and to give satisfactory diuresis in cases of renal cardiac dropsy in which digitalis and strophanthus have been inoperative.—*Lancet*, January 4, 1890.

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#### THE SUBCUTANEOUS ADMINISTRATION OF IRON

PROF. ROSENTHAL, of Vienna, states that this method is advantageous in the cases of delicate neurasthenic persons who suffer, as such often do, from atonic dyspepsia. Here even small doses of iron, taken by the mouth, will sometimes produce disorder of the stomach. In severer forms of disease, such as pernicious anæmia, malarial cachexia, and the graver forms of leukæmia, there does not appear to be any advantage in the employment of the hypodermic method of administering iron. Two new preparations are recommended by Prof. Rosenthal for hypodermic use—viz., the peptonate and the oleate of iron. He states that he has never seen any bad results follow subcutaneous injections of iron preparations, and he explains the fatal consequences that have occasionally been reported as following injections into vascular tumors of the head, by the fact that the vessels composing such tumors are generally closely connected with the veins of the dura mater. He has frequently seen venous enlargements in the legs undergo shrinking after being injected with dilute perchloride of iron, no dangerous symptoms ever ensuing.—*Lancet*, December 14, 1889.

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#### ACTION OF TINCTURE OF IODINE IN RELIEVING VOMITING.

This is by no means a new treatment for vomiting, but as one of the remedies at our service, when less irritating means fail, it deserves remembrance and has undoubted value. Nineteen cases of vomiting from various causes were treated with much success in the service of DR. ROQUES. Among them were eleven cases of vomiting in patients with phthisis. In this disease tincture of iodine is of most service where the disease is not too far advanced, and in those suffering from dyspepsia in the early stages of tuberculosis. The attacks are aborted or reduced in frequency. Most of the patients took the drug readily; it was administered in water well diluted—ten drops in four ounces of water, taken in three portions, after meals. Its ingestion was usually followed by a sensation of warmth in the stomach, as if a glass of strong liquor had been taken, which lasted from five to twenty minutes. The disadvantage of this treatment is that in a certain number of cases

iodism is brought on, a result which depends more on the susceptibility of the patient than upon the dose of the drug. These symptoms disappear quickly after stopping its administration.—*L'Union Médicale*, December 10 1889.

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#### HYPNOTISM IN THERAPEUTICS WITHOUT SUGGESTION.

During a recent visit to Paris PROF. WOOD spent some time studying the results obtained by certain physicians who have much faith in hypnotism.

The accepted theory, stated in a few words, is: that suggestions made during the hypnotic state are capable, not only of affecting the actions of the individual during the hypnotism, but also of affecting the functions of organic life so as to alter a diseased process without the patient being conscious that any suggestion has been made. •

On his return Prof. Wood determined to try the therapeutic effect of hypnosis without suggestion. Two cases were selected: one with tremors simulating those of paralysis agitans; the other, a sufferer from paraplegia.

The history of the tremors case was that some years previously the woman had been attacked by tremors like those now present, but had recovered after three years' illness; that about three months before entering the ward of the hospital the tremors had returned. They had stopped at one time for two weeks, but when the case was taken in charge they were continuous in one arm, and exactly simulated those of true paralysis agitans. This woman was found to be a good subject for hypnosis. The tremors continued during the hypnotic sleep. No hypnotic suggestions whatever were made to her, but the second treatment was followed by great lessening of the tremors, and four treatments sufficed for a cure.

In the second case the paralysis of the legs was almost complete, associated with irregular patches of anæsthesia on the legs, absolute loss of the patellar reflexes, and great complaint of weakness and numbness in the arms. The woman had not the appearance of being hysterical, but the diagnosis of hysterical paraplegia had been made by Dr. Dercum. The ordinary treatment had been instituted without avail. During the hypnotic treatment no suggestions were made to the patient. After the second *séance* the numbness disappeared from the arms; after the third the woman was able to stand; after the fifth she could walk; after eight treatments she was able to walk long distances, stand very well on one leg, and was about to go from the hospital as cured, although her knee-jerks had not returned.

Dr. Wood does not commit himself to any theory as to the method in which hypnosis produces cure, although as yet he does not see why all the effects obtained cannot be accounted for on the theory of mental influence. For the exertion of such influence it is not essential that the physician should speak to the patient specifically about his or her case; especially is this true at the Paris and Nancy Clinics, since the whole atmosphere is heavy with faith. The patients come to be cured of their diseases; they undergo a process which to the ignorant is most mysterious, and which even educated people must, until they are accustomed to it, look upon as "uncanny." The elements of profound mental impression are all present, and it needs no words of the physician to bring them into action.—*Lancet*, January 11, 1890.

## THE THERAPEUTIC VALUE OF SENNA-PODS.

MR. E. F. SALMON has found that the senna-pods are richer than the leaves in cathartin, the active principle of senna, which is a combination of cathartic and phosphoric acids with a magnesium and calcium base, while, in addition to cathartin, there is found in the leaves a volatile oil which is absent in the pods. It is, therefore, on this account that the pods are free from nauseous taste, and are less likely than the leaves to cause griping pains. Treatment with alcohol removes the resinous and odorous principles to which the griping and nauseous taste are due, and will leave the cathartin unchanged. Cold water, on the other hand, readily dissolves the cathartin from the pod, while the cathartin from the leaf, owing to the impervious nature of its epidermis, is insoluble in water. Accordingly Mr. Salmon recommends cold water as the best menstruum for the preparation of a fluid extract. For one pound of pods six pints of cold distilled water for the first and about three pints for the second maceration is a sufficient quantity to use. The fluid extract is tasteless, and in doses of from one-half to two fluidrachms will almost invariably produce purgation.—*Therapeutic Gazette*, Jan. 1890.

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## CAUTION REGARDING THE EXTRACT OF MALE-FERN.

A Bohemian practitioner mentions a case where, having administered two drachms of extract of male-fern in gelatin capsules, followed by castor oil, which had brought away a considerable length of worm, he was somewhat surprised to be aroused at five o'clock on the second morning to go to the patient, who had just had a violent rigor, and was at that time feverish and suffering great pain in the abdomen, with diarrhœa and constant vomiting. The temperature was 103° F, and the stools presented the characteristic odor of male-fern. For these symptoms ice and morphine were prescribed, by which means the sickness was controlled, but the intestinal catarrh required treatment for several days. The writer came to the conclusion that the explanation of the late appearance of the symptoms was due to the fact that the extract in the capsules had become inspissated, and, therefore, difficult of solution in the juices of the stomach. Some little time later he gave the same patient a drachm and a half of the extract in the fluid form, and succeeded in bringing away the whole of the worm without causing any disagreeable symptoms.—*Lancet*, January 4, 1890.

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## STROPHANTHUS AS A REMEDY FOR YOUNG CHILDREN.

After a study of the action of this remedy in young children, PROFESSOR MONCORVO, of Rio Janeiro, believes that it possesses special advantages in these cases. As a cardiac tonic and as a diuretic it is undoubtedly of especial value, not only on account of its prompt action but because it is harmless even to very young patients.

In the pulmonary or broncho-pulmonary affections of children, often complicated with cardiac insufficiency, strophanthus may be of much service.

The action of strophanthus does not seem to be a transitory one, for in a certain number of these little patients the good results brought about by it

persisted for a long time after the drug had been given up. Further, it has no action on the nervous system or on the temperature.

A dilute tincture of *strophanthus* (1 to 20) was used, and the dose varied between four and eighteen drops in twenty-four hours, according to the condition and age of the patient.—*L'Union Médicale*, January 9, 1890.

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#### PHENYLURETHANE, A NEW ANTIPYRETIC.

A new antipyretic, which is said to combine antirheumatic and analgesic properties, has been introduced under the name of "phenylurethane," by PROFESSOR GIACOMINI. It is a compound belonging to the aromatic group, resulting from the combination of aniline with chloro-carbonic ethyl ether. It is a white crystalline powder, insoluble in water, but freely soluble in concentrated alcohol. That its employment is not altogether free from anxiety may be gathered from the recommendation to administer it as a solution in Marsala wine, which is said to prevent collapse, cyanosis, and other unpleasant symptoms. On the other hand, it is claimed to be an energetic and certain antipyretic. For the relief of the pain and swelling of acute and chronic articular rheumatism it has been employed with advantage in doses of seven grains and a half. As an analgesic it is not so certain in its effects, acting beneficially in some cases, whilst in others the result is negative. A dose of seven and a half grains is said to be equivalent to fifteen grains of antipyrin. It is obviously a remedy which will require to be used with caution, both from its composition and from the marked resemblance its actions bear to those of pyrodin.—*Lancet*, January 4, 1890.

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#### A NEW SOLVENT FOR THERAPEUTICAL PURPOSES.

Sulpholinic acid, obtained by the action of sulphuric acid on certain vegetable oils, appears in its concentrated form as a yellowish liquid with a neutral reaction, and having a taste at first sweet and then bitter and astringent. When heated it dissolves numerous organic and inorganic substances, such as sulphur (2 per cent.), iodoform (3 per cent.), camphor (25 per cent.), naphthaline, chrysophanic acid, and coloring matters. These solutions readily penetrate the skin, which completely and rapidly absorbs them. As a vehicle for external applications it seems more generally useful than vaseline, oleic acid, or glycerin.—*Journ. de Méd. de Paris*, 1889.

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#### THE VALUE OF LARGE SUBCUTANEOUS INJECTIONS OF SALT SOLUTION.

VON MÜNCHMYER, of Dresden, reports eight cases of hemorrhage, seven of them in confinement, which were successfully treated by the subcutaneous injection of a six-tenths of one per cent. salt solution.

A rather large-sized hollow needle is sterilized by heating it over an alcohol flame, and the rubber tube and funnel, or irrigator, are disinfected with a five per cent. solution of carbolic acid, directly after which the apparatus is filled with the salt solution. One to two pints of the solution, at a temperature of 37° C., are injected into the back, between the scapulæ, or near the axillæ, at one or several points.



The absorption and distribution of the solution are promoted by massage of the part.

This method is less dangerous than transfusion, and is comparatively painless.—*Therapeutische Monatshefte*, October, 1889.

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## MEDICINE.

UNDER THE CHARGE OF

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### EPIDEMIC INFLUENZA.

NOTHNAGEL (*Wiener med. Presse*, 1890, No. 1, 25) is of the opinion that influenza is a bacterial disease; for although the actual proof of this—the finding of the specific organism—has not yet been offered, yet its clinical course and its epidemic character mark it as a typical infectious disease, such as is caused by the entrance of a microorganism into the system. It is undoubtedly not the microbe, but the toxin produced by it, which produces the symptoms.

The clinical characters of influenza may be at times so different that the belief could be entertained that we had to do with different diseases. In typhoid fever there may be a cerebral typhoid, a pneumo-typhoid, a nephro-typhoid, and the typhoid with abdominal symptoms. It is always the same poison, which probably attacks the organ possessing the least power of resistance. The same is true of influenza, and it is the author's opinion that the influenza poison may act upon different organs, and occasion different symptoms in different cases.

In nearly all cases this poison produces fever, which varies as regards its duration and character. There are isolated and rare instances in which influenza was unaccompanied by fever. Next to the fever the most important symptoms are affections of the respiratory apparatus. After these are disorders of the nervous system (headache, sleeplessness, neuralgia, muscular pains). The author has observed some cases which afford convincing proof of the analogy of influenza to other infectious diseases. After such affections, namely, there are often evidences of motor and sensory irritation or paralysis; and he has seen cases of influenza in which, after the disease had passed, neuralgias, especially trigeminal, remained. A third department of the economy, the digestive tract, is attacked by influenza with relative frequency (loss of appetite, vomiting, diarrhoea).

In many cases, still other symptoms make their appearance; such as

asthmatic attacks, due to direct action of the influenza toxin on the phrenic or vagus or on the nerves of the lung themselves.

In the vast majority of cases influenza is not a dangerous disease. A danger lies in the liability of a capillary bronchitis or a catarrhal pneumonia to develop and to produce death, especially in children and in old and debilitated persons.

The fear has been entertained that croupous pneumonia might develop from influenza. Nothnagel takes the ground that croupous pneumonia is a disease *sui generis*, which has nothing to do with the influenza as such. Pneumonia, as is well known, not rarely develops in persons suffering from an ordinary catarrh of the respiratory passages, and may, of course, do so in the case of the catarrh of influenza; and it is only in this sense that the frequency of pneumonia is increased by the existence of influenza, in that it prepares a suitable nidus for the development of the pneumonia cocci.

Whether influenza is directly contagious is not yet decided, but the author considers it probable, though the great majority of cases contract the disease by infection through the inspiring of the germs in the air.

The treatment must be directed solely against the symptoms, as we possess no specific against the influenza poison. The reduction of fever in every case is not only unnecessary but injurious. The severe pains are to be relieved by antipyrin, acetanilid, and phenacetin. The convalescent should not be permitted to go out too soon, as full recovery is delayed in this way. Nothing can be done in the nature of prophylaxis.

POTAIN (*L'Union Médicale*, December 21, 1889, 878) quotes the generally accepted definition of the grippe as being a febrile, epidemic malady, characterized by a catarrh of the respiratory passages and often of the digestive tract as well, and presenting general phenomena and nervous troubles out of proportion to the real gravity of the affection. This definition, however, is insufficient, because it leaves out of consideration a certain number of cases, and does not completely exclude others which have no connection with the disease. Yet it is very difficult to formulate a definition for a disease which has neither anatomical lesions nor symptoms always characteristic. We have, therefore, to consider the diverse individual variations which the affection presents.

There is a short prodromal period, sometimes absent, characterized by an initial chill or repeated sensations of chilliness, pains in the back, head, and joints, and especially a marked prostration, both moral and physical. There is often sufficient restlessness and anxiety to raise the fear of the approach of some severe disease. This prodromal stage may last from twelve hours to two days.

With the development of the catarrhal symptoms there appear coryza, pharyngitis, laryngitis with hoarseness and even aphonia, cough, and sometimes decided dyspnoea. The physical signs over the chest are absent or insignificant. The digestive disturbances consist in loss of appetite, coated tongue, and sometimes pain in, and slight distention of, the abdomen. Constipation occurs at first, but later diarrhoea with colicky pain may appear. The urine may contain albumin even in light cases. Vertigo, ringing in the ears, and great depression may be seen. The febrile movement is usually characteristic; the temperature rising suddenly to 104° F. In other cases it

may go up more gradually though with greater variations than in a continued fever. In still other cases the fever may be of a distinctly remittent type. An eruption is occasionally witnessed; erythematous or scarlatinal in character, or herpetic or urticarial. The predominance of certain symptoms in any case determines the particular variety of the disease, such as the cephalic, abdominal, thoracic, etc.

LIEBREICH (*Therap. Monatshefte*, January, 1890, 55), in discussing the present epidemic as observed throughout Europe, says that we will perhaps later be able to determine with positiveness whether it is identical in nature with what is usually known as grippe and with the influenza epidemics which have formerly been described. At any rate its violence is a most prominent characteristic. He believes that the direction of the wind, or atmospheric influences, are not the only causes of its spreading, but that it is undoubtedly communicated from person to person. The rapidity with which it develops in schools, manufactories, and the like, is a proof of this. As with many other infectious diseases, the cause is unknown, and the therapy must therefore be entirely symptomatic. Following the course of the symptoms, we see that the affection is quite different from what is usually denominated "influenza." The first symptom, though not in all cases, is chilliness—rarely a rigor—and with this the evidences of catarrhal affection of the nasal, pharyngeal, and bronchial mucous membrane, but of very variable intensity. In all marked cases pain in the hips, thighs, head, and back, especially in the region of the sacrum, is characteristic. Irritation of the conjunctiva, seen in most cases of general catarrh, is here of inconsiderable and of short duration. Intestinal irritation is rare. The fever is slight and generally disappears on the second or third day, and the pulse is not much accelerated, but the exhaustion which follows is very characteristic, being persistent and out of all proportion to the degree of fever. The skin is generally moist, in contrast to its condition in pneumonia. The urine is light colored, and often contains abundant urates. The affection seldom terminates fatally, danger arising only in those cases in which there is previous disease or weakness of certain organs, particularly the heart and lungs.

These symptoms indicate the line of treatment to be carried out. In the beginning, in case there is no perspiration, baths, warm drinks, or, perhaps, Dover's powder should be given. If, on the other hand, there are exhausting perspirations, the whole body may be rubbed with spirits of camphor. The characteristic and very severe pains are modified by antipyrin in very different degrees. Sometimes 15 or 30 grains will entirely and permanently remove them. The diet varies according to the case. In this, as in other affections of the bronchial mucous membrane, "apple-water" is a very useful remedy. This is prepared either by soaking slices of apple for a considerable time in hot water, and then pouring this off, or, still better, by thoroughly boiling apples in a large amount of water until they are disintegrated, straining the water through a cloth, and sweetening. This should be drunk warm. Large quantities may be taken without disturbing the stomach.

At a recent meeting of the Berlin "*Verein für innere Medicin*," RENVERS (*Berl. klin. Woch.*, 1890, No. 1, 16) read a paper on the same subject. He said that the recent epidemic is the seventh occurring in this century. The disease was first described in the twelfth century. Its spread is independent

of climate, the direction of the wind, etc. It may occur in the tropics or in the far north. The disease is ushered in either by severe nervous or by gastric or respiratory symptoms. It attacks individuals of all classes, but its mortality is slight. The cases which first exhibit nervous symptoms run the most rapid course; next in speed are those with catarrhal symptoms, while the longest to recover are patients in whom there are disturbances of the digestive system. Fatal cases are attributable to complications, especially catarrhal and croupous pneumonia, and affections of the throat and ear. In the epidemic of 1833 many cases died of pneumonia. Phthisical patients or others with debilitated constitutions, if attacked by grippe, usually die of their primary disease.

Influenza is an infectious disease of unknown nature, which appears to start from some centre—often Russia—and to spread over whole countries, frequently crossing the ocean. It begins acutely with headache and burning skin, followed in a few hours by nausea, restlessness, injection of the eyes, and fever of  $104^{\circ}$  and over. These symptoms increase in severity; in ten to twelve hours there is perspiration, and in twenty-four hours the temperature falls by crisis and the process is over. The depression and the pains in the limbs and back constitute the chief complaint, and continue until full recovery has taken place.

A second form of the affection exhibits a slowly rising temperature during two days, accompanied by depression, pain in the joints, severe cough, dryness in the throat, and vomiting caused by the cough. The temperature remains high two days longer and then falls gradually. The catarrh disappears after several days; full recovery ensuing after about ten days.

In the third form there is disturbance of the digestive apparatus as well as of the respiratory; vomiting occurs, which greatly relieves the patient, and fever develops. The disease gives the impression of a commencing typhoid.

Catarrhal and croupous pneumonia were observed as complications in the Charité Hospital (Berlin), and instances were noticed in which the inflammation of the throat extended to the ear.

The prognosis is favorable. Treatment consists in the reduction of the high fever by antipyrin, by which means the headache and other symptoms will be removed.

In discussing the subject FÜRBRINGER took the ground that the disease was not contagious. He recognized the three varieties of the affection. He believes further that it is often accompanied by an abortive broncho-pneumonia, as shown by the presence of blood in the sputum. He does not believe in the efficacy of the antipyretics in the treatment of the affection, and recommends rather that morphine be given to allay pain if severe.

LOWENSTEIN accepted the possibility of its transmission from person to person, and had observed relapses in patients who had exposed themselves to the weather too soon.

LEYDEN (*Munch. med. Wochenschr.*, 1890, No. 2, 30) speaks of the widespread distribution of the present epidemic of influenza. Not much less than fifty per cent. of the population, including all ages and classes, are attacked by it. He accepts the three forms described by Renvers, and enumerates the symptoms. Common to all is the sudden development of the disease, with fever and chill or chilliness. The fever is often ushered in by vomiting and other

gastric symptoms, or by redness and swelling of the conjunctivæ. It reaches 102° to 104° F., lasts two or three days, and disappears either by crisis or lysis. Characteristic of the affection are the great prostration and the very tedious recovery. A tendency to hemorrhages from various parts of the body is a frequent complication. Herpes, urticaria, ecthyma, and erythema have been described. The persistence of the anorexia is a noteworthy feature. In addition to the ordinary symptoms of the nervous form, he has observed supra-orbital neuralgia and sciatica. Cerebral symptoms may also appear, as coma and stiffness of the neck; but it is doubtful whether otitis and meningitis can be attributed to influenza. The disease can complicate or be complicated by other disorders. The mildest combination is that with bronchial catarrh or bronchial asthma, from which, however, some old people have died. His phthisical patients have usually recovered from the influenza, even when quite sick. In the last half of the epidemic in Berlin, pneumonia was a frequent complication, as was also the case in St. Petersburg. In a large number of cases the pneumonia seemed to be irregular, in that it was rather a congestion than a true hepatization. In many cases, otherwise typical, there was at no time decided dulness on percussion. The expectoration, too, was often not rust-colored or bloody. The author believes this to be a catarrhal pneumonia peculiar to influenza. Cases of genuine croupous pneumonia also occur. He considers the disease miasmatic rather than contagious.

The pandemic in Berlin was for the most part benign, the cases of death being due almost always to complications.

Influenza and dengue have many points of similarity, namely, that both are pandemic, spread with great velocity, are ushered in by high fever, are attended by a tedious convalescence, run in general a favorable course, and seldom terminate fatally. Two important differences are, first, the localization of the pain, which in dengue is almost always in the knee-joint, and produces the characteristic limping gait; second, in the condition of the skin, which in dengue exhibits a scarlatinal exanthema. The fact that dengue likewise came from the east, and arose in countries bordering on Russia, makes it difficult to deny a certain relationship between the affections.

The discussion at the Medical Society of St. Petersburg (*Wien. med. Presse*, No. 52, 1889) on the subject of influenza is of particular interest, since this was the first large European city in which the epidemic appeared. MORITZ stated that the disease began there during the last days of October, and had attacked about one-third of the entire population. He recognizes the three forms of the disease to which we have already alluded, *i. e.*, 1, the nervous form, with symptoms of affection of the central nervous system; 2, the catarrhal form, in which the affection of the respiratory organs predominates; 3, the gastric form, with violent vomiting, diarrhœa, coated tongue, and loss of appetite. Most of the cases of all these forms recovered completely in two to three days, and many abortive cases were seen in which there were but indications of a few of the symptoms. After the first attack, and after complete apyrexia, there not infrequently developed a second stage with violent catarrhal symptoms and more or less high fever. This new outbreak of the disease is rather to be considered an exacerbation than a relapse. It is apt to appear on the fifth to the seventh day of the disease, and is oftenest seen in those patients who have not sufficiently protected themselves during recovery.

LIEVEN expressed the doubt whether this epidemic is identical with influenza or grippe. Influenza develops during bad weather accompanied by a northeast wind. At the time of the appearance of this epidemic, however, the weather was warm and moist, which might indicate that the cause depended on the decomposition of vegetable matter, as in malaria. Many cases, especially in the better class who are not so much exposed to the weather, exhibited no catarrhal symptoms whatever. This fact, too, would sustain the belief that the disease was something new, and not to be identified with grippe.

KERNIG believed that the epidemic was influenza, but claimed that this word had often been wrongly applied to all severe catarrhal affections. If the word be used in its wider and proper sense, it is fully applicable to the affection under consideration, in which there may be distinct varieties without evidence of catarrhal symptoms. He had been able to recognize temporary enlargement of the spleen in all the cases he had seen. In a number of instances he had observed severe catarrh of the respiratory tract follow a very short attack of the disease. Not infrequently the influenza had been complicated by catarrhal pneumonia, and less often by croupous pneumonia. He witnessed one case of the nervous form which exhibited all the symptoms of meningeal irritation. He regarded the disorder as purely miasmatic, and not contagious.

Several other speakers took part in the discussion, mentioning such circumstances as the occasional occurrence of various exanthemata and of œdema.

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#### THE FEBRILE REACTION IN INFLUENZA.

FRÄNZEL (*Centralblatt f. klin. Med.*, 1890, No. 2, 25) has made careful observations on the course of the temperature in 50 uncomplicated cases of influenza; no antipyretic being meanwhile administered. Only the severest cases came under observation, as only these were admitted to the hospital where the studies were made.

In one case the temperature reached  $105.8^{\circ}$ , and in 11 the curve exceeded  $104^{\circ}$ ; very few of the cases failed to reach  $102.2^{\circ}$ . The duration of the febrile period varies much. In general the average is perhaps three or four days. Rarely it exceeds five days, and in only 2 cases did it last longer than a week. There are two forms of onset of the febrile reaction. In the one the rise of temperature is rapid and continuous, reaching the maximum generally before twenty-four hours is past. In the second form the temperature takes three or four times as long to reach the maximum, and exhibits remissions, generally in the morning.

As an intermediate form may be described that in which the temperature rises rapidly—perhaps  $4.5^{\circ}$  in four hours—to be then followed by a slight remission, and this again by a second rapid rise to the maximum.

The acme usually continues for a short time, and the temperature then falls according to two different methods. In the first it exhibits a remittent type, each evening's exacerbation during several days being slightly less than that of the preceding evening. The second type is that exhibiting a rapid continuous critical fall to normal or below it. The degree of reduction of temperature may equal  $5.2^{\circ}$  or  $7^{\circ}$  within twelve or twenty-hours.

The majority of the author's cases exhibited the first type of reduction of temperature. A few intermediate or mixed forms came under his observation. Among these were cases in which, after an afebrile interval of four or six days there occurred a rise of temperature lasting twelve hours, and reaching 104.4° or more. One genuine case of relapse was noted.

### INFLUENZA OR DENGUE.

After discussing the question of the identity of influenza with dengue, PROUST (*L'Union Médicale*, 1889, December 19, 872) sums up his remarks by saying that the epidemic of influenza prevailing at Paris does not present all the classic and ordinary characters of the grippe as they are usually observed; but that it does not, on the other hand, exhibit the *ensemble* of symptoms of dengue as described by physicians who see it in the countries where it prevails. The epidemic is certainly the same affection which now exists at St. Petersburg, Berlin, Rome, and Madrid. It is remarkable for the short duration, as well as for the benignity of the symptoms attending it.

In discussing this question, which has been repeatedly raised regarding the present epidemic, LIMARKIS, who, living in Constantinople, has had ample opportunities to see both diseases, gives a series of differential symptoms in the *Revue Médico-pharmaceutique*. These arranged in tabular form are as follows:

	Dengue.	Influenza.
Localization:	Hot countries.	All climates.
Duration of an epidemic:	Three to five months.	About one and a half months.
Spread:	Slowly, from small foci.	Rapidly, attacking large districts simultaneously.
Commencement of the disease:	Always sudden.	Almost always sudden.
Fever:	Always very high.	Not always very high.
Nervous system:	Prostration, pain in the head and limbs.	The same.
Larynx and trachea:	Seldom attacked.	Always attacked.
Dyspnœa:	Never.	Common.
Gastric symptoms:	Always; violent, persistent.	May be absent.
Eruption:	Always; beginning in the face, descending, erythematous, ending in desquamation.	Rare, irregular.
Headache:	Sensation of external pressure; iron hoop.	Violent, internal, often neuralgic pain.
Complications:	Rare; of heart, liver, and kidneys.	Common; bronchioles and lungs.
Convalescence:	Very slow.	Usually rapid.
Prognosis:	Always favorable.	Often occurs in malignant forms.
Attacking animals:	Dogs, cats.	Horses.

Still further proof that influenza is not a form of dengue modified by climate is the fact that the former occurs in hot countries in exactly the same form as in northern Europe, and that the two diseases have just appeared in Constantinople, the one shortly after the other.—*Berliner klinische Wochenschrift*, No. 2, 1890.

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#### ESTIMATION OF THE BLOOD-CORPUSCLES IN HEALTH.

REINECKE (*Fortschr. d. Med.*, June 1, 1889) made a long series of observations on his own blood in the effort to determine the relative proportion of the red and white corpuscles. The average derived from the total number of his counts showed a ratio of 1 white to 720 red blood-cells. He states, however, that this may vary from 1 in 100 on the one side, and to 1 in 500 on the other, without passing the limits of what must be called normal. This variation, too, may take place within a comparatively short time, and while the individual remains under conditions of life as unchanging as possible.

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#### OBSERVATIONS ON THE URINE IN PERNICIOUS ANÆMIA.

MR. HUNTER (*Practitioner*, September, November, December, 1889) contributes another valuable addition to the studies which he has already made on this subject. He reports in brief a well-marked and fatal case of the disease. There were seen increasing weakness and anæmia without emaciation, diarrhœa without gastric symptoms, fever only rarely, epistaxis, a well-decided lemon color, and on one occasion a slightly icteric hue. The spleen was perceptibly enlarged during the last three months of life. The blood at one examination gave 64 per cent. of red blood-cells and 56 per cent. hæmoglobin; and at another time 19 per cent. of corpuscles, and 22 per cent. of hæmoglobin. The author regards this high percentage of hæmoglobin as the only characteristic presented by the blood in pernicious anæmia. A high degree of oligocythæmia and poikilocytosis is common also to traumatic anæmia of sufficient intensity.

The urine in this case was repeatedly and carefully examined; its color was that of extremely dark sherry with something of an olive tinge, this being most marked during the exacerbations of the disease. Bile pigment and hæmoglobin could at no time be found in it, but a very large amount of pathological urobilin was discovered. There is no doubt that pathological urobilin is, in all cases, derived from the disintegration of hæmoglobin; the author believes mainly through the medium of the bile-pigments, since he found an increased secretion of bile in this case, as shown by the color of the feces. Another probable source of the urobilin in pernicious anæmia is the pigment deposited in the liver. He thinks there can be no doubt that the excretion of such large amounts of pathological urobilin is evidence of the hæmolytic nature of pernicious anæmia, and is diagnostic of the disease. In traumatic anæmia the urine is invariably extremely pale.

The fact that the hæmolysis in pernicious anæmia takes place in the portal circulation explains why hæmoglobinuria does not occur in this disease. The hæmoglobin liberated is disposed of in the liver, being excreted as bile-pigment or stored up in the form of blood-pigments; when the blood destruction is very great, the liver is unable to dispose entirely of the hæmoglobin,



and it passes into the general circulation. Evidence of this is seen in the deposition of a large quantity of pigment in the kidneys. It is remarkable that in no instance has hæmoglobin or any of its immediate derivatives been found in the urine, even when large amounts of pathological urobilin pointed to an extensive destruction of blood. This is probably to be explained on the ground that the hæmoglobin liberated from the corpuscles reaches the kidneys combined in some way with the albumin of the corpuscles or of the plasma, that it does not answer in the urine to any of the ordinary reactions; when it does appear in the urine it is in the form of yellow albuminous drop-lets, only recognizable on microscopic examination. A further difference between simple hæmoglobinuria and pernicious anæmia consists in the changes found in the kidneys. In the former there occur menisci of hæmoglobin in and around the glomeruli, since it is through them that the principal excretion takes place. In the latter affection there is a deposition of finely granular blood-pigment in the epithelial cells of the primary and secondary convoluted tubules, while the loops of Henle are comparatively free, and in the collecting tubes and the glomeruli there is not a trace of pigment of any kind. This leads to the conclusion that in pernicious anæmia the hæmoglobin is excreted by the epithelial cells of the convoluted tubules, and that within the cells it has undergone disintegration and been converted into blood-pigment.

An important fact in connection with the case reported was that with each exacerbation of the disease there was a reappearance in the urine of renal cells and coats containing granules of blood-pigment. The cells were such as had probably become detached from the convoluted tubules during the extra strain thrown upon them by the increase of pigment supplied them at these times. The author regards the appearance of pigment-cells in the urine as of great diagnostic value in doubtful cases.

Hunter finally takes up the consideration of the excretion of iron in the urine in health and in disease, and details the method to be employed in its estimation. The results of his investigations indicate that, in his case at least, there was an increase in the amount of iron excreted. This, too, points, he thinks, to an excessive destruction of blood as the basis of pernicious anæmia.

Summarizing his observations on the urine in pernicious anæmia, he states that: 1, the presence of pathological urobilin in great quantity; 2, the presence of blood-pigment; and 3, an increased excretion of iron, all point to an excessive destruction of the blood as the cause of the disease, and all agree in that they vary from time to time in proportion to the aggravation or amelioration of the other symptoms. They are, also, of great diagnostic value when present, though pernicious anæmia need not always show these changes.

#### ACTION OF THE DIGESTIVE SECRETIONS ON THE TETANUS BACILLUS.

SORMANI (*Riforma Medica*, 1889, No. 95) concludes as a result of his experimental studies on the influence of the digestive secretions upon the tetanus bacillus of Rosenbach:

1. The flesh of animals which have died of tetanus may be eaten without danger.

2. The producer of tetanus passes through the gastro-intestinal canal of the herbivora and carnivora without producing fatal results or any especial symptom of a diseased condition.

3. The digestive secretions of the herbivora and carnivora exert no destroying or weakening action upon the tetanus bacillus.

4. An animal can, without harm, take into the gastro-intestinal canal a quantity of the tetanus poison far greater than that which will invariably produce death if given hypodermatically.

5. These facts arouse some doubts regarding the theory which would connect the pathogenesis and symptomatology of tetanus with the absorption of metabolic alkaloidal products of the bacillus.

6. The feces of animals fed with material containing the tetanus bacillus can become the means of the diffusion of the virus.

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### DIABETIC COMA AND ITS TREATMENT.

STADELMANN (*Deutsch. med. Wochenschr.*, 1889, No. 46), as the results of clinical and experimental observation on this subject, comes to the following conclusions:

1. Diabetic coma—apart from accidental coma due to other causes—occurs only in the case of diabetic patients whose urine contains oxybutyric acid.

2. Almost equivalent in value with the recognition of oxybutyric acid is the determination of the amount of ammonia in the urine; while it is also far easier of performance.

3. Diabetic patients with an excretion of ammonia of more than 1.1 grammes per day are in danger of becoming severe cases of the disease.

4. Patients excreting 2, 4, 6, and more grammes of ammonia daily need constant watching by the physician, and are in constant danger of passing into diabetic coma.

5. If the determination of the presence of oxybutyric acid, or the estimation of the amount of ammonia cannot be carried out, at least the chloride of iron test should be made. If this gives a positive reaction, oxybutyric acid is present in the urine, and the cases answers to the statements made in the 3d and 4th conclusions. The converse of this is, however, not always true, for there are cases of diabetes with oxybutyric acid in the urine, and even suffering from diabetic coma, whose urine does not give the chloride of iron reaction.

6. These severe cases in which there is an increase of the secretion of ammonia, or the presence of oxybutyric acid with the chloride of iron reaction in the urine, are only with the greatest caution, and with the simultaneous exhibition of alkalis, to be put upon a strict meat diet.

7. If there is fear of the development of diabetic coma, the patients should be put upon full doses of the alkalis, though, of course, with strict oversight and with proper interruptions in the treatment.

8. If coma has already developed, large intra-venous injections of a solution of the carbonate of sodium and the chloride of sodium should be given as quickly as possible; the patient being carefully watched meanwhile. The injections should be stopped if threatening symptoms appear, such as irregularity or marked retardation of the pulse, convulsions, or temporary cessation

of respiration. After a time they should be recommenced, and the process continued until the urine becomes alkaline.

9. Subcutaneous injections of carbonate of sodium are not to be commended, on account of the pain and the deep-seated inflammation they produce.

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#### THE NIGHT-SWEATS OF PHTHISIS TREATED WITH CAMPHORIC ACID.

LEU (*Charité Annalen*, 1889) has employed camphoric acid—produced by the oxidation of camphor with sulphuric acid—against the night-sweats of phthisis, in 13 patients; the drug being administered 155 times in all. In 60 per cent. complete success was obtained, this consisting in complete dryness of the skin. There were no good results obtained in 18 per cent., and partial success in 22 per cent. The dose employed varied from 30 grains given in the evening, to 75 grains administered in two doses. The good effects were often not observed until the second night after the drug was given; and the action of the medicine often then persisted during several nights.

The author found the value of camphoric acid greater than that of atropine, and the effects more lasting. The drug was also free from disagreeable secondary effects, except that in one case an attack of urticaria developed, which, however, had probably nothing to do with the medicament. He tried its alcoholic solution externally for bathing the body, and found it decidedly superior to vinegar in preventing local sweating.

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## SURGERY.

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### UNDER THE CHARGE OF

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#### THE TREATMENT OF CICATRICIAL AND CANCEROUS ŒSOPHAGEAL STRICTURES.

LE FORT (*Bulletin générale de Thérapeutique*, January 15, 1890) divides the contractions of the œsophagus which may require treatment into two great classes—the cicatricial and the carcinomatous—and arrives at the following conclusions:

1. As to the cicatricial strictures: He believes gastrostomy to be a dangerous remedy, which should only be employed in the last extremity, by which he does not mean that we should wait until the patient is dying from inanition, but that we should at first employ all other means, especially dilatation. It is necessary, in his opinion, to use sounds of a special form (which he figures), passing, in the first place, the very finest bougies, which enter

freely into the stricture, and which sufficiently dilate it to enable the patient to swallow liquids. After this all urgency is passed, and we can take the time required to accomplish a complete cure, and without risking the life of the patient.

2. As to gastrostomy in cancerous contractions of the œsophagus, the mortality is enormous (72 in 100 at least) and the average life of those who survive the operation is hardly more than two months, or three months at the most. It seems, therefore, that even in carcinomatous cases continuous dilatation should be attempted. Gastrostomy is only justified by the impossibility of introducing nourishing drinks, and in those patients who, having retained their strength and reason, suffer from the fear of death by starvation. In cicatricial contractions dilatation in the manner which has been indicated should be tried with all the more energy and perseverance, because even after gastrostomy it is necessary to return to the use of the sound in order to dilate the œsophagus. In either class of cases Professor Le Fort refuses to consider gastrostomy as the routine treatment of contractions of the œsophagus.

#### THE SURGICAL TREATMENT OF HEPATIC ABSCESS.

MR. RICKMAN J. GODLEE summarizes (~~The British Medical Journal~~, January 11, 18, 25, 1890) as follows the essential part of his views on the treatment of hepatic abscess, recently published in some extremely valuable lectures which embrace the whole subject, and embody the latest and most authoritative opinions as to its surgical aspect:

1. Pyæmic abscesses do not call for surgical interference, or, if in rare cases one should point, it is only opened to relieve symptoms, but without hope of doing permanent good.

2. The same observations apply to abscesses resulting from suppurative phlebitis of the portal vein.

3. Multiple abscesses associated with dysentery or ulceration of the bowels are very unfavorable for surgical treatment. They must, however, be opened and treated on the same lines as the single or tropical abscesses, because they cannot be certainly diagnosed.

4. Single abscess of the liver, whether tropical or not, must, if it approach the surface, be opened, the following precautions being adopted:

(a) If it present at the epigastrium, the presence of adhesions must be ascertained before incising the liver.

(b) If through the chest-wall, a spot must be chosen below the normal limit of the pleura; but if by chance either pleura or peritoneum be opened, the opening must be closed with a double row of stitches before incising the liver.

(c) Strict antiseptic precautions must be throughout adopted, either carbolic acid or some slightly soluble salt of mercury being employed for the dressing.

(d) The tube must be of large size at first, and a tube of some sort must be kept in until the discharge is reduced to a very minute quantity.

If the abscess have burst into the lung, pleura, pericardium, peritoneum, or kidney, and the position of the abscess can be clearly determined, it must

be opened without delay. If the position of an abscess be only suspected and the patient be losing ground, it is right to puncture the liver in the most likely situation, bearing in mind that, although usually quite harmless, a slight amount of risk accompanies this very trivial operation.

This rule applies to cases in which the abscess has ruptured into any of the cavities enumerated above. If, on the other hand, whether the abscess has ruptured or not, there are no means of diagnosing the whereabouts of the matter, and the patient is not losing or is even gaining ground, the surgeon should hold his hand for a time.

5. Hydatids of the upper and back part of the liver are to be treated upon the same lines; but in cases of this sort, and in those of subdiaphragmatic abscess, it must be remembered that the diaphragm may be pushed up to a very great height, thus closely simulating intrapleural suppuration.

6. Empyema, pericarditis, and peritonitis caused by rupture of an hepatic abscess or hydatid must be promptly dealt with on general principles.

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#### IMMEDIATE SUTURE OF THE KIDNEY AFTER NEPHRO-LITHOTOMY.

M. LE DENTU reports a case in which he removed a renal calculus from a patient who had suffered for fifteen years—having concluded that the calculus was seated in the pelvis of the kidney, although there were no symptoms of suppurative pyelo-nephritis. Some time before, he had removed in the same way a renal calculus which did not present any trace of suppuration, and attempted to obtain primary union of the renal substance, but without success. Nevertheless, he repeated the attempt in the second case. After cutting the inferior half of the convex edge and extracting the calculus, he put in seven stitches of catgut. The renal tissue was so friable that it was not possible to draw these threads very tight, but those that were put in were sufficient to arrest capillary hemorrhage. The result was excellent: not a drop of urine escaped from the wound. By way of precaution, a drain was left in until the fifteenth day. In spite of this success, he does not believe, however, that primary union is easy to obtain after nephro-lithotomy.

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#### SURGICAL TREATMENT OF TUBERCULAR PERITONITIS.

CECCHERELLI reports (*Centralblatt für Chirurgie*, No. 39, 1889) four cases of tubercular peritonitis treated with incision and irrigation. He divides such cases into two groups:

1. A dry inflammatory process, in which surgical interference is useless, since it is impossible to separate all adhesions; and, therefore, the whole peritoneal cavity cannot be cleansed.

2. Peritonitis with ascites, in which incision is indicated, especially in sacculated peritonitis.

In free effusion, paracentesis, followed by moderate irrigation, is often sufficient.

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#### THE SURGICAL TREATMENT OF PERITYPHLITIS.

At the last French Surgical Congress (*Archives Générales de Médecine*, Nov. 1889), M. ROUX, of Lausanne, stated his opinion that there is too great a

tendency to abstain from all active treatment in suppurative perityphlitis, from the incorrect belief that spontaneous cure is the rule. There are, on the contrary, a great number of accidents and relapses, without speaking of the frequent cases of fatal peritonitis, which can be avoided by surgical interference at the proper time. In a series of twenty-one perityphlitic abscesses treated medically, M. Roux has had six imperfect cures, with fistulas and repeated abscesses, and nine cases of peritonitis of which eight terminated fatally. He does not claim that it is necessary to operate in all cases of perityphlitis, but that it is better not to continue too long the expectant treatment. As soon as there is pus, it is well to evacuate it. One can be assured that the pericæcal inflammation is suppurative, when by palpation and percussion an evident infiltration of the superior part of the cæcum and of the ascending colon is found, the intestine being empty. Abscess once diagnosed, M. Roux does not advise, in order to discover the focus of suppuration, the exploratory incision of Sonnenburg, nor exploratory punctures, which frequently give negative results, and are not without danger. M. Roux makes a very large incision, similar to that for the ligature of the external iliac, separates the fascia transversalis, and carries his finger behind the cæcum, where ordinarily the pus is collected. Even if an error in diagnosis is made, such error is only possible in cases which practically demand the same treatment as perityphlitis, and no additional risk is run. If the purulent focus is not found, it will empty itself spontaneously, more easily toward the exterior than into the cavity of the peritoneum, owing to the presence of the wound.

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#### DISEASE OF THE VERMIFORM APPENDIX.

DR. CHARLES MCBURNEY (*The New York Medical Journal*, December 21, 1889), in a valuable paper on the above subject, reviews the general clinical history of cases of appendicitis, and lays especial stress on the important aid to diagnosis to be derived from a symptom which he has frequently observed, namely, the ascertaining, by the pressure of a single finger-tip, that the point of greatest tenderness is, in the average adult, almost exactly two inches from the anterior iliac spine, on a line drawn from this process through the umbilicus. Much greater tenderness at this point than at others, taken in connection with the history of the case and other well-known signs, he looks upon as almost pathognomonic of appendicitis. This point indicates the situation of the base of the appendix, where it arises from the cæcum, but does not by any means demonstrate, as one might conclude, that the chief point of disease is there. The abscess, or concretion, or cyst, may be at quite a little distance, but the greatest pain, on pressure with one finger, will be felt at the point described. The incision should be a liberal one, for much room may be required, and a five-inch cut in the adult is not too much. It should follow as nearly as possible the right edge of the rectus muscle, and the centre of the incision should lie opposite to or a little below the anterior iliac spine, on a line drawn to the umbilicus. When the external oblique aponeurosis is cut through by this incision, the aponeurotic structure, in which the other abdominal muscles end, comes into view, and is easily divided without cutting muscular fibre. Then the fascia transversalis, the subperitoneal fat, and the peritoneum are cut in succession. If pus has

formed close against the anterior abdominal wall, these last-mentioned will be found infiltrated with serum, and even thickened so as to look like cheesy tubercle. Otherwise these parts may appear perfectly normal. On opening the peritoneum the appendix may at once be seen, or adhesions and inflammatory exudations may have so distorted the parts that a careful and difficult search may be required to find the appendix at all. It may be flattened out and glued firmly to the inflamed surface of the cæcum by old and recent adhesions, or it may be coiled upon itself and buried out of view in a mass of lymph. The finger is often quicker than the eye to detect the appendix in these conditions, as it is very certain to be found where the greatest thickening, as felt by the finger, exists.

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#### OSTEOPLASTIC EXARTICULATION OF THE FOOT.

DR. W. RASUMOWSKY (*Archiv für klinische Chirurgie*, vol. xxxix., 1889) discusses the various operations on the foot (Pirogoff, Wladimiroff, Mikulicz, Tauber, Malgaigne), and reports a modification of his own, which he has employed in one case, and which he thinks justifies the following conclusions:

1. In children it is possible to perform an osteoplastic foot operation without the removal of the lower epiphysis of the tibia—that is to say, amputation of the leg can often be replaced by osteoplastic exarticulation of the foot, a procedure which possesses unmistakable advantages.

2. When the cutaneous covering of the heel is intact—*i. e.*, in cases which in adults would indicate Pirogoff's operation, in children, according to the method of Rasumowsky, the posterior portion of the os calcis may be thrust into the inter-malleolar niche. Similar modifications may be made according to the region and amount of uninjured skin which remains. The details are described with great fulness.

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#### TREATMENT OF ANEURISMS OF THE EXTREMITIES.

The discussion at the French Surgical Congress on the question of operative interference in cases of aneurism embraced certain facts brought forward by M. KIRMISSON (*Archives Générales de Médecine*, November, 1889). Of three spontaneous aneurisms related by this surgeon, one only was cured by digital compression after a painful attempt to use an elastic bandage; in the two other cases, compression having failed, it was necessary to have recourse to the ligature.

M. VASLIN had had the same experience, and advocated in aneurisms of the inferior extremity the application of an aseptic ligature at a distance from the tumor.

M. TRÉLAT, who employs only the operative method, declared himself in favor of the direct extirpation of the sac, rejecting the aseptic ligature upheld by Lister, Boeckel, Lucas-Championnière, and Verneuil. The advantage of cutting out the sac is to avoid subsequent accidents—that is to say, inflammation of the sac, producing circulatory and nervous disorders. Arterio-venous aneurisms must be treated at the earliest possible moment; if the sac is small, ligate the arteries and veins; if the sac is bulky, extirpate it.

M. RECLUS rejected all of the milder measures, not alone because cure is only obtained in about one-half the cases, but also because these procedures

are extremely painful, and, above all, because operative methods applied later are liable to be followed by grave accidents, which are due to the irritation excited by the earlier attempts.

M. VERNEUIL, who was formerly an advocate of the "mild" treatment, avoids surgical interference in old people in cases of aneurism of the trunk. With this exception, he adopts the operative method, preferring the ligature to extirpation, often a most difficult operation.

M. PEYROT reported an interesting case of popliteal aneurism, the removal of which was very long and difficult. He believes that while there are cases suitable for ligature, and others which indicate extirpation, that the latter process will become the chosen one.

M. PÉAN (*Revue de Chirurgie*, November, 1889) calls attention to the fact that in nearly all aneurisms of the extremities operation is clearly indicated, as they are very accessible and differ only according to the importance of the artery involved, popliteal and femoral aneurisms being the most interesting surgically. Their cure can be accomplished not only by arresting the blood current by ligature, but also, and preferably, according to M. Péan, by occlusion of the artery by means of forceps. If the aneurism is small and circumscribed, one need not hesitate to open the sac and to empty it, compressing both the superior and the inferior ends of the artery. The forceps are allowed to remain for forty-eight hours, after which they are removed and the wound is closed. For the femoro-popliteal aneurisms the same method could be used, but experience has demonstrated that immediate union is difficult to obtain, and that secondary hemorrhage may result. In these conditions it is preferable to look for the artery above and below the sac, and to place forceps at each of these two points. Pressure has a great advantage over the ligature, in not necessitating the denudation of the arteries and in not permitting foreign bodies to be an obstacle to union by first intention.

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#### NERVE SUTURES.

E. ETZOLD records (*Deutsche Zeitschrift für Chirurgie*, Bd. 29, Hefte 5 und 6, 1889) a number of cases occurring at the Dorpat clinic, in which various nerves, chiefly the ulnar, radial, median, and musculo-cutaneous, were sutured at different intervals after their division, and on the whole with great success. After considering the general subject, he arrives at the following conclusions:

Nerves do not unite by either primary adhesion or second intention. The axis-cylinders are the extension of the cells of the ganglia, and their re-formation or their union by means of an exudation of cellular elements of mesodermal origin is, for anatomical reasons, not to be expected.

Divided nerves are regenerated by means of a proliferation from the proximal stump. This was established by experiments upon animals, and has been confirmed by clinical observation, which shows beyond all doubt that the proximal end of a divided nerve is regenerated earlier and more completely than the distal end.

The return of sensibility is of no value in the diagnosis of nerve regeneration.

The symptoms indicating its occurrence are, *a*, active muscle contraction; *b*, disappearance of atrophy, especially of muscular atrophies; *c*, the slow appearance of this improvement; *d*, the return of faradic excitability in



muscles previously paralyzed. The galvanic current is not of much importance in the diagnosis of nerve regeneration.

Spontaneous union of divided nerves in the extremities is very rare. In high injuries of nerves the prognosis is unfavorable in spite of nerve sutures.

Regeneration of nerves is prevented by the extensive formation of cicatricial tissue.

Nerve suturing is not only a justifiable operation, but in every traumatic case of nerve section it is the duty of the surgeon to adopt it.

The essentials of success are: absolute antisepsis, complete hæmostasis, avoidance of irritation. If, after nerve injuries, a congested condition of the limb results, it should be elevated, and massage employed as soon as the wound is healed. Direct galvanization of the nerve scar should be employed, as well as massage soon after cicatrization in order to diminish the scar.

It is not proven that electric treatment of the organs supplied by the cut nerves either limits the atrophy or favors the nerve regeneration.

Massage and passive gymnastics constitute the rational treatment for peripheral paralyses.

The most extensive use of the extremity that is found possible after nerve section, appears to have a favorable influence upon the healing.

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#### ACUTE MERCURIAL POISONING.

KAPOSI (*Centralblatt für Chirurgie*, December 18, 1889) reports the case of a vigorous woman forty years old, who on account of a maculo-papular syphiloderm had taken, by hypodermic injection within seven weeks, a considerable quantity of "oleum cinereum," which resulted in the appearance of an acute stomatitis, followed by dysentery and death six weeks later.

The autopsy showed the well-known signs of mercurial poisoning. The chemical analysis of the tissues of the last place of injection showed that scarcely a third of the amount deposited there had been absorbed. This fact made the case still more noteworthy, as usually gray oil is exceedingly well tolerated.

In four other cases Kaposi found a greater or less degree of acute stomatitis after similar injections, and in one case there was coexistent albuminuria.

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## OTOLOGY.

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UNDER THE CHARGE OF

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#### CREOLIN IN AURAL THERAPEUTICS.

In the report of the work in the ear clinic at Göttingen, BÜRKNER communicates the experience with creolin (*Archiv für Ohrenheilkunde*, vol. xxviii., Part 4, October, 1889). Preference has been given to Pearson's creolin, which

experiment has shown to be the most efficient. It has been used in the strength of six to eight drops to the pint of water, for syringing the ear, but the results, while good, have not been equal to those described by Vitelberg, Lichtwitz, and others. In some cases bitter complaints have been made of the taste and smell of the drug. It doubtless possesses antiseptic power, but in the above-named solutions the effect cannot be very great, and stronger ones cannot be borne in the ear. The opacity of the watery solution is also an objection to its use, as the appearance of the secretions, etc., washed from the ear cannot be easily seen. A tarry deposit is sooner or later formed in syringes in which creolin is used.

It must, however, be admitted that many cases of chronic purulent discharge from the middle ear heal much more quickly under syringing with creolin than with any other means, owing to the property of creolin to diminish secretion. In chronic eczema a cure is sometimes apparently effected more quickly under the use of creolin than of either a solution of boric or carbolic acid. On the whole, however, Bürkner believes the objections to the use of creolin in aural surgery are graver than the advantages to be derived.

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#### HERBA SABINA AND ALUM IN AURAL THERAPEUTICS.

The same writer (*loc. cit.*) also gives his experience with the mixture of equal parts of herba sabina and burnt alum, which has been used by Lucae in carcinoma of the auditory canal, with good results (*Therapeutische Monatshefte*, No. 11, 1887). Bürkner has used this powder in the after-treatment of polypi, with good results, but he states that it cannot take the place of nitrate of silver in such cases. When time is wanting for the application of lunar caustic, the above-named powder may be substituted.

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#### TREPHINING THE MASTOID PROCESS.

KÜSTER, at the Berlin Medical Society (*Archiv für Ohrenheilkunde*, vol. xxviii. pp. 286-296, October, 1889), read a paper on the fundamental laws of the treatment of suppuration in hard-walled cavities. He maintained that the frequent fatal termination of suppuration of the middle ear could with certainty be warded off only by a timely opening in the mastoid and exposure of the suppurating cavities. He considers, however, that the method of treatment set forth by Schwartz, and in the main followed by aurists of to-day, is not surgically satisfactory. Recovery is often very slow, requiring eight to ten months, sometimes longer, with intercurrent symptoms in some cases, which endanger life, and ensue just as though nothing had been done to the mastoid for relief and prevention.

Küster's experience varies as the primary affection is in the mastoid or in the drum cavity. In the first instance the opening in the mastoid is made a large one, and the middle ear suppuration ceases as soon as the source of the disease in the mastoid is removed. Long-continued syringing will now do more harm than good, as it may work purulent matter into the middle ear and endanger the contents of the cranial cavity.

In primary suppuration in the drum-cavity, Küster advises the removal of the posterior wall of the osseous auditory canal, in order to obtain perfect

drainage from the antrum and the drum-cavity. This is to be formed by a drainage-tube running from the tympanic cavity to the orifice of the external canal. This is similar to the method proposed twelve years ago by C. Wolff, of Herzfeld.

In some primary affections of the mastoid the middle ear may not participate, or, if so, only to a slight extent. These are: 1, tuberculous otitis of the mastoid; 2, acute infectious osteomyelitis of the mastoid; 3, a part of the so-called cholesteatomata, or pearly tumors—subdivided into (a) thickenings and collections of epithelium on the drum-membrane and other parts of the drum-cavity; (b) the rare “congenital dermoid growths” of the inner ear and its environs; (c) the true pearly tumors. Küster regards the latter as “primary congenital tumors of the bone surrounding the drum-cavity.” (Note by Dr. L. Jacobson, of Berlin.)

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#### PEARLY TUMOR OF THE TEMPORAL BONE.

VIRCHOW (*Ibid.*) admits with Küster the possibility that pearly tumors in the middle ear are connected with an early disturbance in the development of the branchial cleft, but does not admit that they are analogues of the sebaceous tumors occurring in the neck. He has never yet found a pearly tumor in the neck. On the other hand, there is in the neighborhood of the middle ear, another locality relatively often the seat of similar formations, viz., the pia mater cerebialis. It is remarkable that that part of it nearest the petrous bone, and connected with it by means of the acoustic nerve, near the medulla oblongata and the pons, is the part most likely to be thus affected.

In conclusion, Prof. Virchow drew attention to the fact, that nearly one-third of the fatal cases of suppuration of the middle ear are attributable to cholesteatoma, and therefore they should be completely removed as soon as discovered.

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#### DIAGNOSIS AND TREATMENT OF OBSTRUCTIONS OF THE EUSTACHIAN TUBE.

DR. DE MENDOZA, of Angers (*Annales des Maladies de l'Oreille*, November, 1889) contributes a very practical paper on the use of bougies in narrowing and strictures of the Eustachian tube. These are divisible into two classes—viz.: 1, permanent or temporary catarrhal obstructions, and, 2, organized or true strictures. The former are usually connected with catarrhal inflammations of the throat and naso-pharynx, and often recover with these affections without special treatment. In the second class of cases the strictures are often due to secondary inflammation of the Eustachian tube, in scrofulous, rheumatic, or gouty subjects. Here are found true organic strictures, usually seated at the isthmus. Their occurrence is more frequent than is supposed, according to the author. The only true way of diagnosing them is by means of whalebone bougies with olive-shaped tips. The normal Eustachian tube permits a passage at the isthmus of a bougie from 1.2 mm. to 1.5 mm. in diameter. In cases of stricture the isthmus is impassable by bougies of this diameter. The bougies employed for this purpose are carefully marked, so as to know how far the instrument projects beyond the catheter's mouth.

TREPHINING THE TEMPORAL BONE IN THROMBOSIS OF THE  
TRANSVERSE SINUS.

ORLOW describes the case of a woman, twenty-seven years old, with chronic purulent otitis media, who had suffered finally with intense pain in her ear for three weeks, attended with swelling of the mastoid region and fever (*Deutsche med. Wochenschr.*, No. 10, 1889). Temporary relief followed an operation and the escape of pus from the mastoid cavity, and the "accidental" opening of an abscess between the dividing wall and the dura mater. It is maintained by Schwartz (Archiv. f. Ohrenheilkunde, Bd. xxviii. p. 310, October, 1889) there is no evidence that there was in this case any broken-down thrombus in the transverse sinus.

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## CASES OF OPERATIVE TREATMENT OF CARIES OF THE TEMPORAL BONE.

This paper is written by DR. L. JACOBY, of Breslau, upon his experiences with the results of chronic suppuration of the middle ear in twenty cases.

1. The first case was one of otorrhœa in the left ear, of several years' standing, attended with cholesteatoma of the tympanic cavity and a fistulous opening through the mastoid. This was permanently healed after three years of treatment, the first step being an enlargement of the fistulous canal in the mastoid, and a thorough removal of the cheesy pus and cholesteatoma from the middle ear, and scraping away all softened bone. This was followed by daily syringing the diseased tract with salt water and solutions of carbolic acid for nearly two years, until the ear had ceased to secrete pus. In the course of another year the patient's ear was entirely healed, and free from all purulent disease.

2. In the second case we find a chronic otorrhœa attended with central caries in the mastoid process and left tympanic cavity, with implication of the labyrinth. Death ensued from pyæmia and abscess of the brain. The operation of enlarging a fistulous opening in the mastoid gave no relief.

3. On the right side empyema, on the left central caries of the mastoid process and of the tympanic cavity, after acute otitis media. Opening of the mastoid cells was followed by cure in three or four months.

4. Acute otitis media, with secondary empyema of the mastoid process: opening by chiselling off layers of bone; cured in two and a half months. Permanent facial paralysis.

5. Empyema of the mastoid cavity resulting from the injudicious insufflation of some kind of powder into the ear when acutely inflamed. Opening in the mastoid by chiselling, as in previous cases, followed in two months by entire relief from purulent disease in the ear.

6. Acute inflammation of the middle ear, with secondary subperiosteal abscess, fistulous opening, and empyema in the mastoid after insufflation of iodoform in the ear while acutely inflamed. Chiselling followed by cure in six weeks.

7. Acute otitis media with secondary empyema of the mastoid process. Chiselling an opening followed by cure in two months.

8. Caries of the left mastoid process and tympanic cavity with fistula in the

cortex, following acute inflammation of the middle ear. Healed in four months.

9. Otorrhœa with central caries of the left mastoid. Chiselled opening, and cure in about two and a half months.

10. Acute suppuration of both ears, complicated on the left side with caries of the mastoid process. Nephritis and general anasarca. Chiselling, and cure in two months.

11. This case was one of acute inflammation of the middle ear, right side, complicated by empyema of the mastoid antrum. An opening was chiselled in the mastoid, and healing ensued in two months.

12. Very chronic, fetid otorrhœa with fistulous communication between the mastoid antrum and the external auditory canal, and central caries and cholesteatoma in the mastoid process. An opening was chiselled in the mastoid; septicæmia followed, but recovery ensued finally in a year.

13. Empyema of the mastoid antrum following acute inflammation of the middle ear. An opening was made in the mastoid by means of the chisel, and recovery ensued in four months.

14. Periostitis and empyema of the mastoid process connected with acute inflammation of the middle ear. Two months after all mastoid symptoms had subsided, new symptoms of pain and tenderness in the mastoid were experienced. A fistulous opening was discovered about one centimetre above and behind the porus acusticus externus. This was enlarged, and the mastoid cavity cleansed with a one per cent. solution of carbolic acid, and the wound dressed with iodoform gauze. Recovery ensued in six months with perfect hearing.

15. Empyema of the mastoid antrum, consequent upon acute otitis media. An opening was made in the mastoid with the chisel, and a cure occurred in two months.

16. Chronic otorrhœa in connection with central caries and cholesteatoma of the mastoid process and the petrous bone. Repeated chiselling operations were followed by severe cerebral symptoms, but finally recovery took place in the course of a year.

17. Chronic otorrhœa attended with central caries in the mastoid, the tympanic cavity, and possibly the labyrinth. Improved by repeated operations.

18. Fetid otorrhœa of ten years' duration, with caries of the tympanic cavity and the mastoid; also cholesteatoma of the petrous bone. Death from meningitis.

19. Chronic otorrhœa in both ears, with central caries of both mastoid processes, complicated with ozæna, and on the left side with labyrinth disease. Chisel operation on both mastoids; bone lesions healed in four months and a half. The ozæna improved.

20. Chronic suppuration of both middle ears, after scarlet fever, with central caries, necrosis of the tympanic cavity, the mastoid process, and the labyrinth, with absolute deafness for speech. The bone disease on the left side healed by operation and removal of large sequestrum. — *Archiv für Ohrenheilkunde*, vol. xxviii., October and December, 1889.

## DISEASES OF THE LARYNX AND CONTIGUOUS STRUCTURES.

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UNDER THE CHARGE OF

J. SOLIS-COHEN, M.D.,  
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### ON THE LOCALIZATION OF PHLEGMONOUS ANGINA.

This subject has been carefully studied by DR. O. CHIARI, whose observations (*Wiener klin. Woch.*, October 24, 1889), based upon descriptions by a number of writers and supplemented by critical investigations in a series of personal cases, merit, in the clinical importance of the subject, a fuller abstract than is usually presented in these pages.

The disease is usually unilateral and limited to the region of the tonsil and soft palate, never extending to the pharynx. It usually attacks adults of middle age. In most instances it progresses to suppuration. It may present as a primary disease, or may occur secondarily, especially in scarlatina.

The tonsil is strongly pushed inward, often beyond the middle line; sometimes by interstitial tumefaction, but more frequently by inflammatory infiltration external to the organ. In instances of the latter character the anterior palatine fold is pushed strongly forward, and is markedly congested. The uvula is often œdematous, and sometimes both palatine folds also. The submaxillary glands are usually tumefied and painful. In many instances there is a swelling externally along the anterior border of the sterno-mastoid muscle. These manifestations are produced in a few days, and may then slowly subside. More frequently, however, suppuration ensues, which is announced by severe beating pains extending to the ear, by œdematous tumefaction of the uvula and palatine folds, and often by a more circumscribed projection in the tonsil, or, more frequently, in the anterior palatine fold. Pain alone may be present on the one hand; and œdematous swelling may occur without suppuration on the other. Usually fluctuation may be detected by careful palpation with counter-pressure externally; but sometimes this symptom cannot be elicited by any device, even though suppuration has taken place.

The normal softness of the velum may be erroneously regarded as a sign of fluctuation. Doubts as to suppuration are frequently present if there be no distinct, circumscribed, often yellowish prominence, indicating its location. Several days are required to reach this condition, during which period the patient can hardly eat or sleep, and is plagued with severe pains, not to mention that his very life may become endangered by œdema of the larynx, or by erosion of bloodvessels. Early incision is requisite, therefore, in the region where suppuration usually takes place. This region is not difficult to locate. It is external to the tonsil and above, and the pus ruptures anteriorly. This is the pharyngo-maxillary space or cavity described by Linhart in 1849, and which, according to more recent researches by O. Zuckerkandl (*Wien.*

*med. Jahrb.*, 1887, p. 309), is composed of an anterior and a posterior chamber in communication by a fissure between the borders of the styloglossus and stylopharyngeus muscles, which separate them. The external and internal carotid arteries course through the posterior chamber. It is in the anterior chamber, however, that the phlegmonous process takes place. Hence, as a rule, there will be no risk of injuring these vessels in opening an abscess. On the other hand, however, it is apparent that in those exceptional instances in which the inflammatory process extends into the posterior chamber, or commences there, ulceration of the walls of the bloodvessels is liable to take place.

[We may be permitted to remark that Chiari makes no allusion to certain important anatomical relations of the stylopharyngeus muscle, long since described by Santorini, and expressly referred to by Luschka, though apparently ignored by anatomists generally. This muscle has far greater attachment to the larynx than it has to the pharynx, and is therefore more of a laryngeal muscle than a pharyngeal one. The muscle is not only attached in great measure to the thyroid cartilage, but likewise to the sides of the epiglottis, and in some instances some of its fibres are continuous into the oblique fibres of the arytenoid muscle. Recognition of these relations renders it easy to account for œdema of the epiglottis and œdema of the larynx in the disease under consideration.—ED.]

The practical points of Chiari's observations are summed up as follows:

1. Angina phlegmonosa is seldom located in the tonsil, and when so located usually produces small abscesses which rupture spontaneously on the surface of the tonsil, or are easily opened.

2. The inflammatory process is usually located externally to the tonsil and above it, pushing the tonsil onward and downward, while the anterior palatine fold is strongly projected forward into the mouth.

3. The suppuration is usually recognizable by accompanying œdema of the uvula and of the palatine fold, by severe lancinating pains radiating to the ear, and by fluctuation. All these indications may be deceptive, however. In doubtful cases an exploratory puncture two centimetres in depth should be made directly backward in the centre of the anterior palatine fold.

4. If there be evidence of pus, an incision should be made with a tenotome or a protected bistoury in the middle of a line drawn from the uvula to the crown of the upper wisdom tooth; unless a yellowish projection or another circumscribed fluctuating point should present elsewhere. The incision should be directed straight backward, parallel to the border of the anterior palatine fold, and may be carried from one to two centimetres in depth without danger. If pus escapes by the opening, the incision should be enlarged downward as the knife is withdrawn.

5. Should no pus appear and the swelling be very great, the incision should be made in the same manner, to relieve tension.

6. In exceptional cases the pus may rupture in an unusual position. It is therefore necessary to make careful inspection of the mouth, pharynx, and rhino-pharyngeal space as far as practicable; for in many instances the location of the abscess can be detected.

[We would mention in this connection that a variety of this disease which does not progress to suppuration, as a rule, but which usually undergoes

arrest while the infiltration remains plastic, has been quite prevalent in the United States of late years, sometimes presenting endemically. The superficial tissues appear œdematous or myxœdematous. Incision fails to discharge serum, but sometimes gives exit to stringy strands of viscid products, much like mucus. In some cases the epithelium becomes discolored and partially detached on some portions of the mucous membrane, so that the parts present a quasi-diphtheritic aspect, which brings those examples into the category of pellicular sore-throats. The disease subsides spontaneously by resolution; recession usually ensuing within five or six days in most instances.—Ed.]

#### STRICTURE OF THE LARYNX.

An instance of complete cicatricial occlusion of the larynx is reported from Schrötter's klinik by DR. GEORG JUFFINGER (*Wien. klin. Woch.*, October 31, 1889). Hoarseness without known cause had existed two years and a half in a man twenty-five years of age. This was followed by dyspnœa eventually requiring tracheotomy. Six weeks after the operation all communication was shut off between air-passage and pharynx. Attempts at dilatation failed. Division of the larynx and removal of the obstructing tissues were only temporarily serviceable. Schrötter found complete occlusion of the larynx. The arytenoid cartilages were closely adherent, and the ventricular bands were thickened and in contact. After repeated failures to find a passage either by way of the mouth or by way of the trachea, Schrötter passed a harpoon-lance between the ventricular bands and through the cicatricial tissue into the trachea. A thin thread was then thrown around this instrument in the tracheal wound, and drawn up through the mouth, when its two extremities were tied together. The next day a thicker thread was tied to the tracheal end of the first one and drawn through in its turn. Subsequently larger threads, then catgut, and eventually a leaden wire of considerable size were drawn through. This was followed by the graduated dilating prisms until on the fortieth day Schrötter's No. 20 could be introduced. At this time a small granulation tumor was detected in the glottis and removed with the electro-caustic snare. Dilatation was continued as before, and eventually confided to the patient, who became enabled to work and to sleep with his canula closed. It is hoped that eventually the canula can be removed.

#### ŒDEMA OF THE LARYNX.

DR. FELIX PELTESOHN examined the records of the autopsies made under charge of Prof. Virchow between 1873 and 1878 (*Berliner klinische Wochenschrift*, November 4, 1889) with the following results:

In 3887 examinations, œdema of the larynx was noted 210 times: 149 in men, 40 in women, and 21 in children. The majority of men had been between eighteen and sixty years of age; and the majority of women between twenty-one and fifty-four; while 13 of the children had been less than five years of age. 44 cases had occurred in regional disease, and 166 in systemic disease. These diseases are tabulated.

Of 5161 patients treated in the clinic for diseases of the throat and the nose between April 1, 1887, and June 1, 1889, there were only 8 with acute œdema



of the larynx; 7 men, between twenty-one and forty-eight years of age, and 1 in a woman fifty-eight years of age. 7 of them occurred in inflammatory regional disease; the etiology could not be determined in the eighth case. Systemic disease could not be recognized in any of the cases.

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#### TUBERCULOUS ULCER OF THE LARYNX, AND THE METHOD OF INFECTION WITH THE BACILLI.

A. P. KORKUNOFF (*Deutsch. Archiv. f. klin. Med.*, 1889, 45, Bd. I., H. 2), after presenting a summary of the views held by various investigators, gives the results of his own careful series of microscopic studies undertaken at the suggestion of von Ziemssen. These show that in the immense majority of instances the bacilli found in the larynx are carried from pulmonic foci by the blood- and lymph-vessels, into previously dilated subepithelial lymph-spaces of the mucous membrane of the larynx; and that they penetrate the epithelium from without only in some of those exceptional cases in which, from other causes, some solution of continuity has occurred, affording access to the bacilli of sputa which have been expectorated from the bronchi and become lodged upon the diseased portions of the mucous membrane.

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#### EXTERNAL OPERATIONS IN TUBERCULOSIS OF THE LARYNX.

DR. BETZ, of Mainz, discusses (*Therap. Monatshefte*, November, 1889) the indications for surgical interference in tuberculosis of the larynx, and especially with reference to laryngectomy. He refers to the opinion expressed by E. Fränkel and by Massei that this radical procedure should be practised in cases of primary tuberculosis; and he cites an instance reported by Hopmann in 1887, in which the patient's sufferings were wonderfully relieved to the date of death, some three months later as a result of progress in the pulmonary lesions. He then reports a case in which he regrets he did not practise timely extirpation, as the progress of the disease and the post-mortem investigation rendered it probable that such a course would have been preferable to the tracheotomy and symptomatic treatment which had been pursued. While Betz is far from believing that such cases as the one in question are frequently observed, he asserts that the fact that they do occur does not justify absolute abstention from laryngectomy in their treatment.

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#### FOREIGN BODY REMOVED FROM THE ŒSOPHAGUS UNDER ELECTRIC ILLUMINATION.

DR. VON HACKER reports (*Wiener klin. Woch.*, October 31, 1889) a case from Schrötter's clinic in which he was enabled with the panelectroscope to see a large irregular fragment of hog-bone impacted in the œsophagus of a woman, eight inches from the incisor teeth, or just above the region of the tracheal bifurcation. The tube slid past the body, having probably pushed a circular fold of the mucous membrane before it. The bone was extracted with some difficulty owing to its impaction, the forceps having slipped from it twice. On the third attempt the two ends of the bone were detached by appropriate screwing motions, and then the bone was readily removed with

the tube. There was no blood lost in the manipulation, although previous attempts, a few hours earlier, to remove the body with the coin-catcher had produced considerable hemorrhage.

There is no doubt that the use of the œsophagoscope is of great value in avoiding injury to the walls of the œsophagus in the extraction of irregular foreign bodies, inasmuch as the position of the body can be detected, and the manipulation be controlled under inspection.

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## DERMATOLOGY.

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UNDER THE CHARGE OF

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### HISTOLOGY OF LUPUS ERYTHEMATOSUS.

MIETHKE (*Monatshefte für praktische Dermatologie*, Bd. ix. No. 8) examined pieces of affected skin taken from the back of the hand, neck, chin, and alæ of the nose, excised from points where the diseased and healthy skin met. The disease is found to have its starting-point in the connective tissue, with perivascular infiltration in the papillary bodies; later, the rest of the corium is invaded, with a certain preference for the environment of the sebaceous glands, notwithstanding that these structures are not rich in vessels. The process pursues, in a relatively rapid manner, a course of infiltration and destruction, as proved clinically and anatomically by the scars. With the beginning of the infiltration in the corium there is associated a pathological process in the epidermis, consisting of hyperplasia of all the layers and paratypical cornification.

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### PSEUDO-LEUKÆMIA CUTIS.

MAX JOSEPH (*Deutsche med. Wochenschrift*, November 14, 1889), under the above heading, first refers to the subject of leukæmia cutis as portrayed by the three cases of Biesiadecki, Kaposi, and Hochsinger and Schiff, reference being also made to the recent case of Besnier and Vidal designated as "lymphodermia perniciosa (Kaposi);" and then states that in internal medicine distinction is made between true leukæmia and another form, having some symptoms like and others unlike leukæmia, called by Cohnheim pseudo-leukæmia, and by others anæmia lymphatica resp. lienalis, or Hodgkin's disease.

The question whether a specific disease of the skin can show itself with

this general disease is answered in the affirmative by the report of a case. The patient was a man, aged sixty-six, who had the affection for two years. He was poorly nourished, with a pale skin, and manifested enormously enlarged lymphatic glands in the groins, axillæ, and neck. Upon the general surface, without special localization, there existed a great many hempseed-sized, pale red papules, covered with unaltered epidermis, and distinctly discernible with the finger. The skin had a hard, grater-like feel, and between the papules was darkly pigmented and much thickened. There was violent itching. The patient shortly afterward died of acute hemorrhagic nephritis.

The author points out the difference between this eruption and that of true prurigo of Hebra, which it resembled more than any other skin disease. The autopsy showed leukæmia lymphatica et lienalis, with lymphomatous tumors of the neck, groins, etc., and of the liver. During life an examination of the blood showed slight decrease in the red corpuscles, but no increase in the white corpuscles. Three other cases of pseudo-leukæmia reported by E. Wagner as lymphatic anæmia likewise showed the same eruption, which was regarded by Wagner as a form of prurigo.

#### AN UNUSUAL FORM OF PUSTULO-ULCERATIVE DISEASE OF THE SKIN.

BRONSON describes (*Journal of Cutaneous and Genito-urinary Diseases*, November, 1889) a peculiar eruption of a pustulo-ulcerative type, involving, to a greater or less extent, all parts, except the palms, soles, and flexures of the joints. The eruption consisted of papules, tubercles, pustules, and incrustated superficial ulcerations, the ulcers varying in size from a few lines to a half inch in diameter, and numerous small irregularly-shaped scars. There were also, numerous pigment marks and petechiæ, especially over the back. There was a marked tendency toward irregular grouping and corymbiform arrangement. Apparently the beginning of the lesions was papular, pustular, and in some cases vesicular, occupying the site of a hair-follicle. Added to the cutaneous eruption the face was œdematous and swollen. There were no constitutional symptoms. The disease had begun eighteen months previously. There was a distinct strumous history. Under the use of tonics and antistrumous remedies the patient had gradually improved. In some respects the disease suggested an analogy with dermatitis herpetiformis, but, as a whole, partook more of the nature of modified acne cachecticorum.

#### ACTINOMYCOSIS.

FESSLER, surgeon to the Munich clinic (*Monatshefte für praktische Dermatologie*, Bd. ix. No. 8), gives the following characteristics of this disease as observed in two cases:

1. The sluggish, obstinate course of the inflammation without fever or special pain.
2. The considerable extension and induration of the inflammatory process.
3. Where the disease has its seat on or in a bone, the latter and the soft parts are found closely adherent by means of thick strands.
4. Usually in the course of weeks or months a circumscribed superficial softening occurs, which discharges itself externally without causing disturbing general

symptoms. 5. The discharge is a scanty, blood-colored serum, eventually showing signs of glandular tissue. 6. Such a softened area cicatrizes quickly, the whole tumor receding somewhat, but growing again in the next few weeks. 7. Extensive destruction seems to set in late.

TILANUS, of the University of Amsterdam (*Monatshefte für praktische Dermatologie*, Bd. ix. No. 8), relates a case occurring in a young girl, otherwise healthy. It began as a swelling upon the right side of the face, at first progressing slowly, and later broke out at several points, which remained open. The right cheek from the eyelid to the neck was much swollen, and covered with elevated red spots, between which were granulating ulcers discharging scanty seropurulent fluid. On the neck a semi-fluctuating tumor could be felt. The mouth could be well opened; the mucous membrane of the cheek was but little or not at all infiltrated, but nearly all the teeth were carious. The diagnosis was established by the microscope. The fistulæ and cavities were scraped, injected with corrosive sublimate solution and antiseptically dressed; after a repetition of the scraping cure took place.

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## OBSTETRICS.

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UNDER THE CHARGE OF

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### THE CAUSES AND CONSEQUENCES OF OLIGOHYDRAMNIOS.

TRUZZI (*Thesis*, Bologna, 1889) has found cases in which the amniotic liquor was reduced to a few drachms of thick, mucilaginous fluid. In cases less marked deficient development of the fœtus and lack of normal muscular activity are observed. It is not at present possible to say whether deficient fœtal development is caused by oligohydramnios, or *vice versa*.

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### PLACENTA PRÆVIA; DEATH FROM TRUE ANÆMIA.

LOVIOT (*Bulletins de la Société Obstétricale de Paris*, No. 7, 1889) reports a case of placenta centralis in an anæmic multipara, in whom version and extraction with removal of the placenta were done without hemorrhage. Uterine inertia continued, and although no further bleeding occurred, death ensued from exhaustion. Stimulation was unavailing, and symptoms of thrombosis were wanting.

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### A CASE OF FŒTAL RETENTION DELIVERED BY UTERINE INCISION.

HERRGOTT (*Annales de Gynécologie et d'Obstétrique*, December, 1889) reports the case of a multigravida who ceased to feel fœtal life at six months. The

fœtus was retained without effort at expulsion until crepitation in the abdominal tumor, with fever and vomiting in the mother, showed beginning septic infection. A probable diagnosis of dead fœtus retained by reason of a uterine or pelvic fibroid preventing delivery was made, and laparotomy was done. The macerated fœtus was found in a uterus so thinned and distended as to be simply a cyst, a pelvic tumor rendering spontaneous delivery impossible. The uterus was incised, and the fœtus extracted. It was decided not to suture the uterus, as its muscle had lost all contractile and retractile power; the patient was too weak to endure uterine amputation. Furthermore, the placenta was so firmly adherent that its speedy delivery was impossible without dangerous bleeding. Accordingly, the uterus was left open and stitched to the abdominal wall; its cavity was cleansed with a solution of  $\beta$ -naphthol, tamponed with iodoform gauze and covered by salicylated gauze. The uterus was redressed daily, and irrigated with the following solution:

$\beta$ -naphthol	.	.	.	.	.	.	.	.	.	gr. 6.
Alcohol	.	.	.	.	.	.	.	.	.	5 2½.
Distilled water	.	.	.	.	.	.	.	.	.	1 quart.

Rubber drainage-tubes were also inserted, and the patient's septic diarrhœa was treated by salicylate of bismuth. The placenta began to come away on the thirteenth day after operation, and was completely discharged on the twenty-fourth day.

Two months after operation cicatrization was complete, the pelvic tumor having greatly lessened in size. The patient made a complete recovery three months after operation.

#### AN OCCIPITO-POSTERIOR POSITION IN WHICH ROTATION WAS PREVENTED BY A SECONDARY PLACENTA; LABOR COMPLICATED BY MATERNAL GOITRE.

MANTEL (*Annales de Gynécologie et d'Obstétrique*, December, 1889) describes an interesting case of labor in a primipara suffering from congenital hypertrophy of the thyroid gland. As labor advanced, expulsive efforts brought on alarming syncope with turgescence of the goitre, which necessitated the application of the forceps. Anterior rotation of the occiput failed, and the occiput turned into the hollow of the sacrum. Delivery was readily accomplished with Tarnier's small forceps, the perineum being moderately torn. Two joined placenta were found, one large and full of blood, the other small, compressed, and anæmic. The smaller placenta had prolapsed in front of the head, preventing rotation. The cord (fifteen and a half inches long) was inserted in the point of contact of the two placenta, two complete systems of vessels being given off to the placenta, one vein and two arteries to each. The membranes ruptured at the lower border of the principal placenta. Mother and child recovered well.

#### A CASE OF SPONDYLOLISTHETIC PELVIS.

VON HERFF (*Zeitschrift für Geburtshülfe und Gynäkologie*, Band 17, Heft 2) reports the case of a multipara who gave no history of rhachitis, and had

walked during her first year of life. She gave a history of pulmonary catarrh, and pain in the sacral region. She had given up heavy work, and had led as easy a life as possible. Her first child died in labor and was delivered by craniotomy. When pregnant the second time she was carefully examined, and found to have a spondylolisthetic pelvis. The fœtus lay transversely in the pelvis, and with the consent of the parents labor was induced, combined version performed, and the delivery of a living child effected. It was found impossible to make the head engage transversely during extraction, because of the prominence of the vertebræ at the pelvic brim. The chin was pressed firmly on the chest by pressure from above, and the head so delivered in an oblique diameter of the pelvis.

From the comparative study of this and other pelves, the conclusion is drawn that a spondylolisthetic pelvis is a kyphotic pelvis, with luxation of the body of the last lumbar vertebra.

A case of sacral kyphotic pelvis is also described, in which the deformity consisted of a moderate contraction in the antero-posterior diameter of the brim, widening of the pelvic cavity, and contraction of the outlet. Birth resulted spontaneously.

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#### TWO FATAL CASES OF SPONTANEOUS UTERINE RUPTURE.

ST. BRAUN (*Przegląd Lekarski*, Nos. 40 and 41, 1889) reports a case of spontaneous uterine rupture and escape of the fœtus into the peritoneal cavity in the second half of pregnancy. Fœtal death and peritoneal abscess followed. Six weeks after pus escaped by the vagina; laparotomy removed the macerated fœtus. The mother died from purulent cystitis and pyelitis.

Also the case of a multipara, in whom a difficult previous labor was followed by cicatricial contraction of the cervix. Incision of the scar tissue and traction with forceps resulted in rupture of the vagina and uterus at their junction. Cæsarean section was made at the moment of death; the child perished. Delay in making the section or uterine amputation was thought largely answerable for the result.

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#### THE CÆSAREAN SECTION IN HOLLAND.

VAN DER MAIJ (*Nederl. Tijdschr. voor Verloskunde en Gynæcologie*, Jahrg. 1, Heft 1) reports recent Cæsarean operations in Amsterdam which show a revival of the operation among Dutch surgeons.

His first case was a multipara, in whom birth was impossible because of a pelvic tumor which reduced the antero-posterior diameter of the pelvic brim to 1.9 inches. The Sänger operation was done seven hours after labor began, silk being used for suture material. Recovery followed, complicated by parametritis, caused by septic infection conveyed by a physician who examined the patient after attending a septic case.

His second case was a rhachitic primigravida, who recovered, the child perishing eight weeks after birth.

The third case was a multigravida with flat, rhachitic pelvis, whose previous pregnancies had ended in the death of the fœtus, the pelvic diameters not permitting the birth of a living child. At her own request, she was delivered by Cæsarean section, making, with her child, a good recovery. She became

pregnant again, and returned in eighteen months, requesting a second operation. The incision was carried to the right of the former one, and adhesions between the uterus and abdominal wall were ligated and separated. The elastic ligature was applied about the cervix, and the uterus incised. No trace of a uterine cicatrix from the former incision was discernible. After the extraction of the child and its appendages, profuse hemorrhage occurred, which was controlled by tamponing the uterus with iodoform gauze dipped in a bichloride solution at a temperature of 130° F. The uterus was closed with silk, and, after two injections of ergotin, remained well contracted. The recovery of mother and child followed.

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#### PREGNANCY IN A BICORNATE UTERUS MISTAKEN FOR ECTOPIC PREGNANCY.

MUNDÉ (*American Journal of Obstetrics*, January, 1890) performed laparotomy on a patient who had a tumor to the right of the uterus, supposed to be an ectopic gestation. Closer examination by the sound revealed pregnancy in the cornu of a bicornate uterus. The amniotic fluid was aspirated, when the outline of the uterus became normal. The uterus was replaced in the abdominal cavity, and, as was intended, the patient aborted that night. Uninterrupted recovery followed.

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#### THE DIAGNOSIS AND TREATMENT OF EARLY ECTOPIC GESTATION.

FÄNKEL (*Berliner Sammlung klinischer Vorträge*, Heft 17, 1889) reports three cases of tubal gestation. In the first rupture of the tube and escape of the ovum into the abdomen was followed by encapsulation of the ovum by inflammation. Complete absorption of the ovum and hæmatocele followed in fifty days. In the second retro-uterine hæmatocele followed rupture of the tube; recovery by absorption resulted, convalescence being established in eight weeks. In the third case peritonitis followed repeated hemorrhages, with death.

In diagnosis, attention is drawn to the shape of the uterus in ectopic gestation, it is flatter, less round, long and slender, while in intra-uterine gestation it is rounder. The decidua of pregnancy is known by the cells and the glands covered with epithelia growing at the mouth of the gland.

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#### FOUR CASES OF ECTOPIC GESTATION.

TUTTLE (*American Journal of Obstetrics*, January, 1890) reports a case of ruptured tubal pregnancy, with large intra-peritoneal hæmatocele; the sac was extirpated by laparotomy, the intestine being torn and sutured. Adhesions were loosened, the appendages left, and the abdomen flushed with hot water. Drainage was used. The patient was permanently cured. Electricity had been tried in this case but had failed. A second case of ruptured tubal pregnancy of the right tube was cured by laparotomy. In the third case the distended right tube was removed unruptured, containing the ovum. In the fourth case a very large intra-peritoneal hæmatocele was found; it was opened and clots removed, when alarming bleeding occurred, checked by clamps and iodoform gauze tampons; the clamps remained twelve hours, the gauze was gradually withdrawn in two days. Recovery ensued. The right tube and ovary were not seen.

## TUBAL PREGNANCY TREATED BY LAPAROTOMY.

MURATOW (*Journal für Geburtskunde und Frauenkrankheiten*, Russisch, No. 6, 1889) performed laparotomy upon a patient pregnant eleven months who had fever, and on whom an attempt had been made to dilate and empty the uterus. In the Moscow clinic ectopic gestation was diagnosed, with parametritis and suppuration in the sac. A macerated foetus was delivered from a sac just under the surface of the abdomen; the placenta was left and drainage made. After tedious recovery multiple neuritis developed, from which the patient died. Post-mortem examination showed the foetal sac communicating with the left tube, composed of a development of the tunica albuginea of the tube and a layer of inflammatory tissue.

## THE INTRA-UTERINE USE OF THE CURETTE.

BOREL (*Lyon Médicinische*, No. 45, 1889) employs the curette to empty the uterus after abortion with retention of portions of placenta, abortions followed by hemorrhagic endometritis, retention of the placenta after delivery at term. His method is as follows: Instruments used are passed through alcohol flame, strict antisepsis of hands and nails is practised; iodoform oil is employed as a lubricant, and bichloride 1 to 5000 for douches. An anæsthetic is not given; Cusco's speculum is introduced and opened widely; if necessary, the cervix is dilated by metal dilators; the curette is introduced dipped in a solution,

Creasote	.	.	.	.	.	.	.	.	.	5 parts.
Alcohol	.	.	.	.	.	.	.	.	.	8 "
Glycerin	.	.	.	.	.	.	.	.	.	25 "

and the endometrium thoroughly scraped. The uterus is then thoroughly washed out with bichloride 1 to 5000, and tamponed with a strip of iodoform gauze, which is carried to the fundus. Eight cases of puerperal septic infection are reported in detail in which this procedure was followed by good results.

## THE MICROSCOPIC AND BACTERIOLOGICAL STUDY OF THE LOCHIA.

ARTEMIEFF (*Zeitschrift für Geburtshilfe und Gynäkologie*, Band xvii., Heft 2) concludes from extensive study of the lochia that the lochia of healthy women consist of blood corpuscles, pavement epithelium, mucous corpuscles, fatty degenerated cells, and cells which he designates locheiocytes. In the first few days after labor red blood-corpuscles predominate, which gradually diminish, while the locheiocytes become more numerous. With a mixture of pavement epithelia, mucous corpuscles, and fatty degenerated cells, the locheiocytes constitute the lochia alba. The reaction of the lochia is at first neutral, then feebly acid; during pregnancy the vaginal secretions are acid. The lochia of healthy women contain neither pus cells nor microorganisms. Locheiocytes may be recognized by their behavior when treated with gentian-violet or methyl-blue. They then appear as several (two, three, four, and more) large, deeply colored nuclei surrounded by clear and well-defined protoplasm, while pus cells stain homogeneously with the same dyes and show no nuclei. Locheiocytes are larger than pus cells in the proportion of one to two-thirds. Artemieff considers them true mucous cells.



### THE BACTERIOLOGICAL STUDY OF THE LOCHIA AND OF THE SECRETIONS OF THE GENITAL TRACT DURING PREGNANCY.

THOMEN (*Archiv für Gynäkologie*, Band xxxvi., Heft 2) has examined the lochia of healthy women, and the genital tract of pregnant women, with the following conclusions: The vaginal lochia contain abundant bacteria of various sorts; in three cases streptococci were found. These microorganisms were more abundant in the vicinity of the entrance to the vagina than above.

Bacteria are more abundant during the puerperal period than immediately after labor; during menstruation bacteria are abundant in the vagina. The cervical lochia were sterile in some cases, contained few germs in others, and in a case of gonorrhœa contained many. In the greater number of cases the uterine cavity contained no germs; in pathological cases germs were present although fever did not always accompany them. It is possible that they had been killed by antiseptic injections employed in treatment. In control experiments upon animals germs from the vagina of normal cases produced no reaction when injected; streptococci in one case caused abscess and death.

An examination of the vertex of the child's head, after vertex labors, showed germs upon it derived from the vagina of the mother. Thomen found that in proportion as the vulva is in apposition bacteria are absent; the passage of anything which admits air favors the entrance and development of bacteria, menstrual blood serving as an especially good culture ground for germs.

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### A CONTRIBUTION TO THE STUDY OF AUTO-INFECTION.

SZABÓ (*Archiv für Gynäkologie*, Band xxxvi., Heft 1) contributes to the question of auto-infection in puerperal sepsis an extended review of the literature, and his own observation of 5070 cases in Kézmárszky's clinic in Budapest. His practical conclusions are strongly in favor of considering the healthy parturient, who has no vaginal examination or instrumental interference during labor, as aseptic and needing no douches. In proportion as students examine women in labor the frequency of fever and septic mortality increases, even when all possible antiseptic precautions are observed. The conclusion which he would draw for practical guidance is to limit douches to cases presenting some focus of infection before labor, or having had instrumental interference or injury at labor. Vaginal examinations and manipulations should be restricted as far as possible, limited to the least number of persons, and conducted with strict antisepsis. External antisepsis should be a routine, and rigidly observed. In abnormal cases, and in treatment of septic infection, prompt antiseptic treatment is very efficient.

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### PUERPERAL TETANUS.

GAUTIER (*Revue Médicale de la Suisse Romande*, No. 12, 1889) has collected 74 cases of tetanus, 36 following abortion and 38 following confinement. The most frequent complications followed by tetanus are those requiring the use of an intra-uterine tampon and the artificial removal of retained placenta.

Autopsies were made on 15 cases: 3 presented, on microscopic examination of the brain and cord, no appreciable lesion; in one case a retained putrefied

placenta was found in the uterus; in 5 suppurative inflammation of the uterus or appendages; in 1 ovarian cyst. The other autopsies showed hyperæmia of brain, cord, and meningitis; in 1 a hemorrhage into the lateral ventricles. 10 patients recovered, 5 after abortion, 5 after labor; mortality 86 per cent.

The most successful treatment is the use of antiseptics, stimulants, and sedatives. The genital organs should be disturbed as little as possible. Chloral is especially useful, and two drachms may be given in the first twenty-four hours, increased or diminished afterward as indicated by its effect. Gautier adds the report of a case of tetanus following a protracted abortion, in which hemorrhage followed lifting a heavy weight, but abortion was not complete until three and a half weeks afterward. Recovery ensued under the use of chloral, absolute repose, and careful feeding.

WERZÜNSKI (*Russian Journal of Obstetrics and Gynecology*, No. 6, 1889) reports the case of a primipara with contracted pelvis delivered by forceps. The perineum was slightly torn and promptly sutured. Some œdema of the labia was observed. Headache occurred on the fourth day, with trismus on the fifth. Tetanus and opisthotonus supervened. Nephritis, uræmia, and septic infection were excluded on careful examination. The symptoms abated, when, on the sixteenth day, an effort to rise was followed by renewal of spasms and death. A post-mortem examination was not obtained.

#### THE SURGICAL TREATMENT OF PUERPERAL PERITONITIS.

BOUILLY (*Archives de Tocologie*, No. 12, 1889) suggested, at the recent French Congress of Surgery, the following method of treating puerperal peritonitis, which he had employed in six cases: An incision two and one-third inches long having been made in the linea alba, a glass douche tube connected with a fountain syringe is carried with the finger among the intestinal coils, and eight or ten quarts of hot water are allowed to run, a hot solution of bichloride of mercury 1 : 10,000 may be used. A large drainage-tube and heavy antiseptic dressing complete the peritoneal toilet.

#### THE EFFECT OF MATERNAL HEMORRHAGE UPON THE FŒTUS.

CHARPENTIER and BUTTE (*Nouvelles Archives d'Obstétrique et de Gynécologie*, No. 12, 1889) conclude, from experiments upon pregnant rabbits, that when the mother suffers a hemorrhage sufficiently rapid and severe to cause her sudden death, the fœtus may survive if it be rapidly extracted. If the hemorrhage be less rapid, but sufficient to cause the death of the mother, and prolonged, the fœtus will perish just before the mother. If the hemorrhage is not sufficient to cause maternal death, but is considerable, the fœtus commonly dies in about an hour.

#### A CASE OF FŒTAL ACHONDROPLASIA.

PORAK (*Nouvelles Archives d'Obstétrique et de Gynécologie*, No. 12, 1889) reports the case of a fœtus whose skeleton exhibited lesions constituting what he designates achondroplasia, which he defines as follows: a dystrophy of the primordial cartilage which accompanies the first osteogenetic formation at three to six months of fœtal life and which is complete in the last third of

pregnancy. The lesion is in the cartilage cells of the epiphyses of the long bones, whose longitudinal development is impaired, while the transverse growth is exaggerated; the lacunæ of the cartilage are well marked; it is elastic but does not fracture, and when ossified is remarkable for its firmness. Osteoporosis, fractures, and pseudo-paralyses, as found in rhachitis and syphilis, are not found in achondroplasia. The fetus presents a normal trunk, slightly enlarged head, and limbs small in proportion, with hypertrophy of the skin, which lies in folds. The diaphyses of the long bones are exceedingly compact.

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CONGENITAL UMBILICAL HERNIA SUCCESSFULLY TREATED BY  
LAPAROTOMY.

MACDONALD (*American Journal of Obstetrics*, January, 1890) reports a case of congenital umbilical hernia which resisted reduction by taxis. The infant was wrapped in flannel and chloroformed. The contents of the sac were found to be the ileum, ascending colon, and cæcum; the vermiform appendix, the size of a bean, was distinctly seen. The small intestine was returned to the abdomen, but it was necessary to resect the peritoneal layer, the wall of the sac about the cæcum and colon on account of firm adhesions. No hemorrhage followed. The ring was transfixed by an encircling suture, the wound dressed with bismuth and borated cotton, with flannel binder. Uninterrupted recovery followed. The operation was made six hours after birth.

Macdonald states the indications for operation as follows: the sac must be such that delay would lead to sloughing; the hernia must be irreducible; it must be incapable of retention by trusses. He has collected nineteen cases with seventeen recoveries.

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GYNECOLOGY.

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UNDER THE CHARGE OF  
HENRY C. COE, M.D., M.R.C.S.,  
OF NEW YORK.

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THE IMPORTANCE OF EARLY EXTIRPATION OF THE UTERUS FOR THE  
CURE OF CANCER OF THE CERVIX.

MEYER (*Correspondenzblatt für Schweizer Aerzte*, 1889, No. 4), in describing the results of vaginal hysterectomy at the Zürich clinic, refers to two cases in which there was no recurrence at the end of two and four years respectively. He believes that the radical operation is justifiable only when the uterus can be drawn down so low that *the entire operation from beginning to end can be completed outside the vulva*. If the organ is less movable than this, the operator can never be sure that he has removed all the disease. He estimates that in the canton of Zürich forty women die from cancer of the uterus annually, and that an average of six patients, or fifteen per cent., submit to vaginal hysterectomy during the same period, a fact which emphasizes the importance of the early recognition of malignant disease.

When the symptoms have become so marked as to be unmistakable, it is too late to perform the radical operation with any hope of a permanent cure; hence general practitioners should learn to recognize the initial symptoms of cancer, and should insist upon an examination on the slightest suspicion. Moreover, the laity must be taught that if cancer of the cervix is recognized early there is hope of a permanent cure by hysterectomy with a minimum of danger, whereas, if they wait until the appearance of severe pains, hemorrhage, and offensive discharges there is little prospect of other than temporary relief. [The question naturally arises: Does not the limited class of cases in which alone the writer considers vaginal hysterectomy as justifiable include precisely those in which permanent relief is obtained by high amputation?—ED.]

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#### THE RESULTS OF TOTAL EXTIRPATION OF THE UTERUS.

KALTENBACH (*Berliner klinische Wochenschrift*, 1889, Nos. 18 and 19) reports fifty-seven cases of vaginal hysterectomy, fifty-three for cancer, two for sarcoma, and two for prolapsus uteri. The writer seldom resorts to high amputation; as soon as the disease has extended above the portio-vaginalis he removes the entire uterus. Only two patients died immediately after the operation—one from uræmia, due to ligation of a ureter, and one from supposed sublimate poisoning in a case of diseased kidneys. In several instances the bladder, or ureter, was injured without bad consequences. Recovery was always rapid. Kaltenbach closes the peritoneum, having previously irrigated with a weak boro-salicylic solution. In seven cases of cancer of the corpus uteri there has been no recurrence; seven of the others are known to be well after the lapse of more than a year. Even if there is a return of the disease at the edges of the wound it can be kept in abeyance with escharotics or the actual cautery, and the patients are more comfortable than they would have been if the operation had not been performed.

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#### VISCERAL DISEASE AS A COMPLICATION OF CANCER OF THE UTERUS.

LECA (*Thèse de Paris*, 1888) has made a special study of this subject and finds that aside from the renal lesions, which naturally follow direct pressure upon the ureters by extension of the disease from the uterus, patients with cancer are especially liable to cardiac affections, in which opinion he is supported by the opinions of Letulle and Lancereaux. Fatty degeneration of the spleen is a common accompaniment of carcinoma uteri, attributable, perhaps, to the fact that there are toxic elements in the blood which are especially injurious to that organ. [The Reporter has repeatedly been struck with the frequency of cardiac and renal lesions in patients with cancer of the uterus, even where the disease is strictly limited to the cervix uteri. The number of deaths from uræmia after vaginal hysterectomy is significant in this connection. So important are these visceral complications, that at the New York Cancer Hospital anxious watch is kept for them both before and after operation, since they sometimes make their appearance in patients who were thought to be in most promising condition. This is only one argument in favor of the rapidly growing belief that vaginal hysterectomy is not so free from immediate danger as many surgeons have claimed.—ED.]

# A DIGEST OF TWENTY YEARS' EXPERIENCE IN THE TREATMENT OF UTERINE CANCER BY GALVANO-CAUTERY.

BYRNE'S paper (*Transactions American Gynecological Society*, vol. xiv., 1889) has attracted considerable attention by reason of the wide experience and well-known conservatism of the author. The results reported are most remarkable; 367 patients were operated upon, the disease being limited to the portio-vaginalis in 59, involving the entire cervix in 81, the body alone in 8, and both cervix and body in 219. In the first class the average period of exemption was upward of six years, 13 having been under observation for over ten years; in the second it was between four and five years, in the third two years, and in the fourth nearly three years. The writer's method of operating consists in scraping out the cervical canal thoroughly with a sharp curette, separating the vaginal attachment with the cautery knife, and removing the diseased mass as high up as possible with the galvanic loop. The remainder of the cervical canal is then cauterized, and finally the stump is thoroughly cleansed. In order to insure patency of the canal all patients who have not reached the menopause are examined once a month for at least a year. The after-treatment consists in tamponing the vagina with cotton saturated with glycero-tannin and five-per-cent. carbolic acid, the tampon being changed at the end of forty-eight hours. An anodyne is rarely required. The bowels are moved by enema on the third or fourth day, and the usual vaginal injections are given.

In conclusion, the writer states his belief that by the cautery not only is the cancerous tissue destroyed, but the heat extends beyond the parts which are visibly diseased, arresting the development of cancer cells or germs, or exerting some powerful modifying influence upon the pathological processes at a degree which does not seem to be destructive to normal tissues. [It is impossible not to be convinced by such statistics as these. The enthusiastic advocates of vaginal hysterectomy, even for cancer limited to the portio-vaginalis, may well stop and ask themselves what credit they gain by this brilliant operation the results of which are merely temporary.—ED.]

## ON THE CHOICE OF METHODS IN THE TREATMENT OF UTERINE CANCER.

REEVES JACKSON gives an able *résumé* of this subject in the *Medical News* for January 18, 1890, in which he reviews the three methods of treating cancer of the cervix uteri—high amputation, galvano-cauterization, and vaginal hysterectomy. After reviewing the statistics of high amputation, as set forth by Baker, Reamy, Verneuil, and Hofmeier, he reports thirty cases from his own practice in which he performed this operation, with a mortality of 6.6 per cent. Nine patients are now living at the end of from two and one-half to six years after the operation. Reference is made to the unusually favorable results obtained by Pawlik and Byrne with the galvano-cautery, and, finally, by quotations from Martin, who stated at the International Medical Congress that out of 214 women who had submitted to vaginal extirpation of the uterus only five were living at the expiration of five years, the temporary nature of the relief afforded by hysterectomy is clearly proved. "A hundred women with uterine cancer," he concludes, "will live a greater number of years if left alone than if subjected to hysterectomy."

## INTESTINAL OBSTRUCTION FOLLOWING THE REMOVAL OF A CYST OF THE MESENTERY.

LÖHLEIN (*Berliner klinische Wochenschrift*, 1889, No. 5) reports the case of a patient, aged fifty-seven, who was suddenly attacked with diarrhœa and pains in the stomach, attended with a slight rise of temperature. Examination of the abdomen revealed a cystic tumor the size of a man's head, which, on his performing laparotomy, was found to be a true mesenteric cyst with firm intestinal adhesions. It was drained and stitched in the wound. The patient made a good recovery, but four weeks after the operation was suddenly attacked with vomiting, which soon became fecal in character, and attended with moderate tympanites. Intestinal obstruction in the region of the sac was diagnosticated and laparotomy was performed promptly. A coil of intestine was found adherent to the sac in such a way as to limit peristalsis and cause obstruction. The gut was detached and dropped back and the patient made a rapid recovery. The writer opposes the practice of exploratory puncture, on account of the danger of wounding the intestines which might be adherent to the upper surface of the cyst, as in this case.

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## THE IMPORTANCE OF THE PRACTICE OF WASHING OUT THE PERITONEAL CAVITY AS A MEANS OF SECURING A NATURAL DISPOSITION OF THE INTESTINES AFTER ABDOMINAL SECTION.

MALCOLM, in a short but suggestive paper (*Lancet*, January 11, 1890), again calls attention to the great danger which may result to the patient after laparotomy, from simple paralysis of the bowel, though peritonitis may be entirely absent. Raw peritoneal surfaces are very apt to unite, even if they are entirely healthy. It is impossible after a laparotomy to arrange the coils of intestine in such a position that they will not sometimes become adherent. In sponging they are very apt to be disturbed and thrown into unnatural relations. By irrigating the cavity we cause the intestines to float upwards and thus undo any twists that may have formed. Now, if the fluid is sucked out of the cavity, instead of being withdrawn by sponges, they will settle down in their natural position just the same as when ascitic fluid is evacuated. Persistent vomiting after laparotomy seems to be beneficial rather than otherwise, since by the pressure of the diaphragm and abdominal muscles the bowels are rearranged, as it were, and made to assume their normal relations. The important point to be borne in mind is that it is not so much the fact that the intestines contract adhesions to adjacent parts which give rise to subsequent persistent pain or obstruction, as it is that they become adherent in unnatural positions.

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## SIXTY CASES OF LAPARO-MYOMOTOMY.

FRITSCH (*Sammlung klin. Vorträge*, No. 339) in his first twenty-seven cases treated the stump according to the intra-peritoneal method, but his results were so bad that he subsequently adhered to the extra-peritoneal. Of thirty-two cases treated in the latter way five died, one from uræmia (double pyelo-nephritis), one from endocarditis, one from hemorrhage, and two from ileus—i. e., there were no septic cases. He does not accept the theory that

septic infection comes through the cervical canal, and attributes the fatal peritonitis in these cases rather to the accumulation within the cavity of more serum than the peritoneum is able to absorb, especially if the patient is in bad general condition or has some pre-existing visceral lesion. He does not use the elastic ligature. A wedge is excised from the stump, not transversely, as usual, but in such a direction that the surface of the stump and the abdominal wound are parallel; its opposite surfaces are united by deep and superficial sutures, and the stumps of the broad ligaments, together with all the ligatures, are brought out through the wound to favor drainage. This operation can be performed safely and quickly, and the peritoneal cavity is absolutely shut off. Of twenty-two patients thus treated only two died, one from uræmia and one from ileus.

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#### THE RESULTS OF NEPHRORRHAPHY.

FRANK (*Berliner klinische Wochenschrift*, 1889, Nos. 9-11) adds to thirty-six cases collected from the literature twenty operated upon by Hahn. The latter now opens the fatty envelope of the kidney, splits the true capsule, and lifts the latter from the subjacent parenchyma, an area on which is freshened, and thus unites to the opposed surface, giving a firm cicatrix. The patient is kept in bed for five or six weeks. Of the fifty-six patients operated upon only two died, and these not in consequence of the operation. In twenty-one cases all the bad symptoms disappeared, in nine there was marked, and in seven considerable relief. The writer believes that nephrorrhaphy should first be tried in all cases of floating kidney before the organ is extirpated.

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#### THE CURE OF VAGINISMUS BY THE GALVANIC CURRENT.

LOMER (*Centralblatt für Gynäkologie*, December 14, 1889) reports the following cases of vaginismus which were cured by the continuous current:

*Case I.*—The patient was twenty-two years of age, had been married five years, and suffered so much during coïtus that the act had never been perfectly accomplished. After other treatment had been employed in vain a mild continuous current was used, the kathode being placed on the stomach, while the anode was applied to the peritoneum and introïtus, the *séances* being repeated every third day and lasting four or five minutes. At the end of six weeks the muscular spasm was entirely relieved and coïtus was satisfactory. The cure was permanent.

*Case II.*—The patient, aged twenty-seven, had been married two months without having had coïtus, repeated attempts having caused so much pain and irritation that they were abandoned. The constant current was used as in the former case, effecting a perfect cure within five weeks.

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#### TWO HUNDRED AND THIRTY-EIGHT CASES OF COMPLETED OVARIOTOMY.

BANTOCK (*Transactions British Gynecological Society*, November, 1889) gives an interesting summary of his results in four hundred cases. In the first hundred, most of which were done according to the Listerian method, he lost nineteen, in the second fourteen, in the third (in which no antiseptics were

used) eight, and in the fourth four. He uses plain water—not even boiled—for all purposes from washing the hands to irrigating the peritoneal cavity and discards all germicides in his dressings.

He washes out the peritoneal cavity quite frequently, having done so in more than one-half of the last hundred cases. When there has been profuse hemorrhage the addition of salt to the water in the proportion of seven parts to a thousand may favor a sort of process of transfusion, as suggested by Delbet.

In treating the pedicle, Dr. Bantock compresses it with forceps to obviate slipping of the peritoneal folds, before using the permanent ligature, which is the figure-of-eight loop.

Until 1885 he administered opium as a routine practice after operations, but in his last hundred cases it had been given only three times. Even in cases of supra-vaginal hysterectomy the patient is encouraged to do without it, and always with the best results.

Vomiting after laparotomy is best arrested by keeping the stomach empty for several hours before operation, and allowing nothing to be taken subsequently, except a little hot water if there is ineffectual retching, or if the stomach contains bile. If the latter becomes decomposed, fifteen or twenty grains of bicarbonate of soda in three or four ounces of hot water will check the resulting nausea. The writer's patients are rarely much troubled with nausea, however, as he has always employed chloroform as an anæsthetic. Allowing the patient to suck ice for the relief of thirst after operation is a pernicious practice. Rinsing the mouth with warm water gives more relief and is preferable in every way.

Of late years he has rarely seen a case of peritonitis after laparotomy, in which respect he regards himself as very fortunate, since he has "little or no faith in any kind of treatment." He does not understand the *rationale* of the saline treatment, since peritonitis is largely due to the presence of offending material within the peritoneal cavity which can only be removed by reopening the wound. Neither late vomiting nor tympanites is necessarily a symptom of peritonitis; distention is rather a sign of obstruction, either mechanical or from simple paralysis of the gut. In these cases he stops everything by the mouth, with the most satisfactory results. He accepts the statements of Tait and Greig Smith with regard to the action of saline purgatives, but not their interpretation of the facts observed. "I believe," he says, "that we are as far as ever from the attainment of a successful method of treating actual peritonitis."

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CHOREA IN THE ADULT AS SEEN AMONG THE INSANE.

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IN collecting data for the preparation of a paper upon hereditary chorea which appeared in the JOURNAL for December last, I found that chorea in adult persons was, irrespective of the feature of heredity, considered by a large number of writers as a rare affection. I, myself, had never seen a case except in this hospital, where there are at present six cases, three of which present very unusual features, viz.: one is a case of so-called hereditary chorea, another has chorea alternating with epilepsy, while a third is of peculiar interest because it is a congenital case.

In the article above referred to, I have spoken of the first two of these cases, the case in which direct hereditary transmission was traceable, forming the text for the discussion. In this paper I shall again refer to both cases, though briefly, together with the four unpublished cases. A search into the literature of the subject led me to believe that six adult choreics in an insane population of 900 was a large number; but, on the other hand, I felt that the rarity of the affection is not so great, at least among the insane, as is claimed by some authors.

Several writers have spoken of various moral, mental, and emotional deflections which were observed in choreics with long-standing histories of the affection. Clouston<sup>1</sup> as early as 1870 spoke of choreic insanity, and again in 1873<sup>2</sup> he called attention to "choreic insanity," which he says "is in every way allied pathologically as well as in its symptoms to the "rheumatic insanity"—an affection to which Skae<sup>3</sup> referred in

<sup>1</sup> Journal of Mental Science, vol. xvi. p. 210.

<sup>2</sup> Ibid., vol. xx. p. 207.

<sup>3</sup> Ibid., vol. xx. p. 204.

his lectures in 1845. Graves early called attention to chorea in the aged. Clouston recognized the fact that insanity and chorea coexisted in a single individual, but appears to have regarded rheumatism as the sole cause of the trouble—*i. e.*, given a case of chorea with mental disturbance, there must have been an antecedent history of rheumatism. He quotes the opinion of Arndt, a careful German observer, who

“does not believe in the existence of chorea without more or less simultaneous affection of the intellectual faculties. The abnormal movements are mere symptoms of a much more extensive disorder involving the entire nervous system.”

After discussing the mental disorder observed in ordinary chorea of childhood, Clouston says:

“There is a form of insanity, or rather mental imbecility, that accompanies and results from a long-continued chorea. . . . It is, in fact, the ordinary dementia that follows all long-continued mental derangement.”

Thus we see that Clouston at that time recognized the facts that chorea was to be found in a chronic form, and that its existence so continuously in a person brought about a gradual impairment of the mental faculties which progressively increased and finally came to be actual dementia.

Bucknill and Tuke<sup>1</sup> pass the subject over after quoting Griesinger and Clouston. Griesinger<sup>2</sup> says very rarely chorea arises out of acute rheumatism, but that “sometimes, under the influence of accessory causes, we see prolonged melancholia with stupor, mania, mental weakness, etc., occur.”

Spitzka,<sup>3</sup> after combating the idea that the mental faculties are ordinarily affected in chorea of childhood, discusses the subject of chorea in the chronic insane in these words:

“In protracted cases of chorea the mind suffers in the direction of actual insanity; in that case maniacal outbreaks, confused delirium, enfeeblement of the memory, rapid emotional change, and, in extreme cases, dementia may ensue. It is a psychosis with these symptoms which is designated choreic insanity.”

Savage<sup>4</sup> relates a case of “multiple sclerosis,” of which he says:

“I have no doubt that a few years ago this case would have been looked upon as one of chorea with mental symptoms; and it was in many particulars like the disease, but there was sufficient evidence to make the diagnosis sure.”

Considering the element of doubt here introduced as to the diagnosis of this case, it is to be regretted that the distinguished author does not give us something which would make this point clear. To say that the patient had “all the peculiarity of head and limb movement which is common

<sup>1</sup> Psychological Medicine, pp. 377 and 378.

<sup>2</sup> Op. cit., Sydenham Society Translation, p. 189.

<sup>3</sup> Manual of Insanity, p. 372.

<sup>4</sup> Insanity and Allied Neuroses, p. 390. (Ed. 1885.)

in that disease" (multiple sclerosis) does not convey to the reader a very clear idea. Further, when he says "any attempt at movement was followed by irregular, spasmodic movements of all his limbs," I cannot feel, as does Dr. Savage, that the diagnosis is certain. On the contrary, from the description, it looks quite as much like a case of chorea as it does of multiple sclerosis. Savage states there were six choreics among 846 patients admitted to Bethlem. Intellectual weakness, he says, is common in these patients, but tells us no more of them than the mention of that fact.

M. Rosenthal<sup>1</sup> calls especial attention to the hereditary irritability of the coördinating apparatus. This disposition, he says, is not always shown by the direct transmission of choreic affections, but the existence of other nervous diseases in the parents or other members of the family. Wharton Sinkler<sup>2</sup> says chorea may occur at any age, and has himself recorded<sup>3</sup> two cases in persons aged eighty-two and eighty-six respectively.

Speaking of psychical disturbances in chorea, von Ziemssen<sup>4</sup> says they are "rarely absent, although in the lighter cases they are but little developed." Charcot<sup>5</sup> satisfactorily demonstrates that chorea and ordinary senile trembling are essentially different conditions. The gesticulatory character of the one, he declares, cannot well be mistaken for the simple oscillatory movements of the other, which are usually confined to the head.

The coarse, irregular, incoördinate movements of the choreic are peculiar and distinctive. I myself have never seen a case of chorea which could be mistaken for paralysis agitans, locomotor ataxia, multiple or lateral sclerosis—the affections presenting symptoms which are nearest in character to those of chorea. Further, I am unable to notice any essential difference between the movements in these chronic cases of chorea with insanity and those observed in the ordinary chorea of childhood, except, perhaps, the movements in the latter case are, as a rule, more exaggerated.

We find occasional references to chorea in the adult by the early writers, a few of whom appear to have recognized and noted, though briefly, this interesting phase of the disease; but, for several years just prior to the appearance of Charcot's paper upon the subject in 1878, the disease appears to have been, by many, lost sight of or confounded with ordinary senile trembling, or one of the various scleroses. Its very existence was unknown or denied. Since the date of Charcot's monograph the affection has been noted and described by a sufficient

<sup>1</sup> Diseases of the Nervous System.

<sup>2</sup> Pepper: System of Medicine, vol. v. p. 441.

<sup>3</sup> Journal of Mental and Nervous Disease, July, 1881.

<sup>4</sup> Cyclopædia of Practice of Medicine, vol. 14, p. 438.

<sup>5</sup> Medical Times and Gazette, 1878, vol. i. p. 245.

number of observers to make unnecessary, in this place, an attempt to establish the fact of its existence or an endeavor to go into the points of differential diagnosis. I do not mean to say that no cases are to be found which cannot be diagnosed readily—for such there may be; but I simply wish to say this, that ordinarily—in the great majority of cases—no difficulty in diagnosis is experienced.

I will next notice some reports of cases of chorea in the adult. Several of them are of great interest, and all, I think, are worthy of perusal in connection with the subject.

James Macfaren's<sup>1</sup> is the earliest report of a single case which I can find:

It is the case of an unmarried man, aged forty-six years, who was sober and industrious in his habits. Choreic movements noticed six years ago; slowly but steadily increasing. At time of admission to hospital "had constant choreic twitchings of his limbs, which were never still for an instant; was always swinging his head about and jerking it from side to side. When asked to put out his tongue could not do so for some time, and then suddenly protruded and withdrew it." The mental symptoms were slight. There was some enfeeblement of mind, and upon slight provocation he was often extremely irritable. No history of rheumatism. Heart examined frequently and found to be normal.

Sutherland<sup>2</sup> reports a case of "hysterical chorea" in a married woman, aged fifty-three years. Twenty-five years ago she had an attack of chorea caused by anxiety for safety of her husband, who was a soldier engaged in the Crimean war. Six months before she had had an attack of tetanus, immediately after which choreic movements were noted. The incomplete history of an attack of tetanus, and the fact that the patient had a "sham epileptic fit," led the author to believe this case to be admixed with hysteria.

G. Mackenzie Bacon<sup>3</sup> relates the case of a female, aged fifty-eight years, admitted to Cambridge Asylum with maniacal excitement and severe choreic movements which had existed six months. She died in the hospital after rather a long residence there, having been choreic continuously up to the time of her death.

Octavius Sturges, in a painstaking article on "Statistics of Fatal Chorea,"<sup>4</sup> in which he brings together 80 cases<sup>5</sup> of death in connection with the disease, draws attention to the striking fact that, although chorea is generally regarded as a child's affection *par excellence*, 48 of these cases were of persons over thirteen years of age, and the ages of two not being stated. As to sex, of 46 of these 80 cases (excluding from consideration the other 34 because particulars were not given) he finds 34 were females and 12 males, only 8 of the females being children; of the males, 9 were adults and 3 boys. The principal reason why these

<sup>1</sup> Journal of Mental Science, vol. xx. p. 97.

<sup>2</sup> Ibid., vol. xxv. p. 398.

<sup>3</sup> Ibid., vol. xxvi. p. 253.

<sup>4</sup> Lancet, July 17, 1880.

<sup>5</sup> These cases were gathered from records of a great number of years, and are taken from the following sources: (a) 3 cases (quoted by Dr. Bright), Med.-Chir. Trans., 1839; (b) 11 cases (Dr. Hughes), Guy's Hospital Reports, 1846 (first series); (c) 7 cases (from same source), 1855 (second series); (d) 34 cases (Dr. Tuckwell), St. Bartholomew's Hospital Reports, vol. v.; (e) 22 cases (Dr. Dickinson), Med.-Chir. Trans., vol. lix.; (f) 3 cases (Dr. Peacock), St. Thomas's Hospital Reports, vol. viii.

statistics show such a great disproportion of deaths among adults as compared with children is because of the chronic character of the disease in the adult, and the almost invariably acute character in children. The adults usually died *of* chorea, while children died *with* the disease. Of the few deaths in children dying *of* chorea nearly all occurred about the age of puberty. This time of life is regarded by Sturges as a strong predisposing cause of death, the fatal cases, among the children, belonging almost exclusively to this period.

W. Bevan Lewis<sup>1</sup> reports in detail a case of post-hemiplegic chorea associated with insanity in a woman aged sixty-one years:

Eighteen months before, she was seized with paralysis affecting the right side of her face and right arm; she was also deprived of the faculty of speech, but the right leg was unaffected, and she did not lose consciousness. Six months ago she began to lose control over the movements of the right leg, and about the same time the right arm, which had regained much of its former power, became the seat of characteristic movements which were present upon her admission to the West Riding Asylum. Coincidentally with the onset of choreic movements mental derangement was noticed. Her speech was notably choreic; she was peevish, querulous, and obstinate, unable to concentrate her attention, and, at times, unable to make the slightest mental exertion.

The *post-mortem* examination revealed a superficial softened patch, involving the cortex of the posterior part of the left supra-marginal, anterior limb of the angular and second annectant gyrus of the left hemisphere; similar softening involved both ascending parietals along their middle thirds; cortex generally wasted and thin. Careful examination of the ganglia of both hemispheres showed no change beyond a minute hemorrhage of recent date, involving the posterior part of the left lenticular nucleus.

Charcot reports two cases of chorea (already referred to) both of the same age—seventy-one; in one case the disease had existed twelve and in the other eleven years. He believes the affection due to emotional causes and not associated with rheumatism or heart disease, and that it is incurable but does not endanger life.

Robert Saundby<sup>2</sup> presents notes of three cases of his own, and adds brief summaries of eight cases already reported by others, making his paper a consideration of twelve cases in all.

CASE 1.—Man, aged sixty-six; never had rheumatism; does not attribute his illness to any emotional cause, but has been worried about business. Can walk half a mile. Movements which affected left side and chiefly the left upper extremity have much abated under observation. Has gouty pains in his legs; has double aortic and a mitral systolic murmur.

CASE 2 (previously noted by Russell<sup>3</sup>).—Man, aged sixty-eight, who had been ill eighteen months. No heart disease or history of rheumatism. No signs of dementia.

CASE 3.—Man, aged eighty-seven; no obvious dementia, but disease has existed only five weeks. Movements, which are constant, chiefly affect the arms, but the head and legs are not free from them; no heart disease or history of acute rheumatism; has enlargement of extremities of metacarpal

<sup>1</sup> Journal of Mental Science, vol. xxx. p. 256.

<sup>2</sup> Chorea in the Aged. Lancet, 1884, vol. ii. p. 948.

<sup>3</sup> Medical Times and Gazette, 1878, vol. ii. p. 627.

bones; has suffered from rheumatism in all his joints, but was never laid up with it. Upon inquiry does not admit that he has any trouble and seems of a cheerful disposition.

CASE 4 is one recorded by Russell.<sup>1</sup>—A lady, aged seventy-seven, who recovered after an illness of seven months. Movements mainly left-sided; no dementia; normal heart; never had rheumatism, or previously chorea.

CASE 5, by C. J. Devis.<sup>2</sup>—A man, aged seventy-nine; demented; chorea confined to left upper extremity and left side of face; no cardiac disease or history of rheumatism. He died under observation after chorea had lasted a month.

CASES 6 and 7 by Wharton Sinkler, and Case 8 by M. Bacon, have already been referred to in this paper.

CASES 9 and 10, by Graves.<sup>3</sup>—One in an apothecary, aged seventy, which was "severe and lasted many months." The other in a woman, aged fifty, who had family troubles; the attacks were intermittent, but when present did not leave her even during sleep.

Saundby thinks—and I concur in his opinion—that difficulties in the diagnosis of chorea arise principally from ignorance of the fact of the existence of the affection in adult and old persons. The ordinary senile trembling is not easily confounded with chorea when it is known that both affections are, without doubt, found at the same time of life.

J. C. McLearn<sup>4</sup> notes the case of a gardener, aged fifty-six; good family history; no heart trouble; has never had rheumatism. Fifteen years ago he became "nervous;" staggered in walking. These first choreic symptoms continued to increase slowly until four years ago, when the death of his wife profoundly affected him. His choreic symptoms became greatly exaggerated. These movements affect arms and head more than trunk; there is cessation during sleep. He has difficulty in articulation; tongue protruded in jerky, irregular manner; irritable, easily excited by trifles, but he is not demented; cannot stand alone; gait shuffling and unsteady. He has had arsenic, iron, bromide of potassium, conium, sulphate of zinc, and, locally, ether to the spine. No improvement noted.

Sée has noted chorea in a woman, aged thirty-six, in another forty-four, and in a man fifty-one. Jeffreys in a patient sixty years old. Powell and Maton in another seventy years old. Bouteille saw a man aged seventy-two who was affected with it. Henri Roger, a case of chorea in a lady eighty-three years of age.

C. B. Radcliffe<sup>5</sup> quotes 96 cases of chorea, the statistics of which were given by Ogle. Of these cases 19 were above fifteen years of age; 2 occurred at sixteen, 6 at seventeen, 2 at eighteen, 1 at nineteen, 2 at twenty, 2 at twenty-one, 1 at twenty-three, 1 at twenty-four, 1 at twenty-six, 1 at forty-three; and of these 19 cases only 3 were males.

Without pretending to notice all recorded cases of chorea in adults, I have endeavored to present in these more or less concise abstracts a sufficient number and variety of cases to illustrate the subject. I am

<sup>1</sup> Ibid., 1878, vol. i. p. 459.

<sup>2</sup> Ibid., 1879, vol. ii. p. 447.

<sup>3</sup> Lectures on Practice of Medicine, 2d ed., vol. i. p. 537.

<sup>4</sup> Lancet, 1885, vol. i. p. 337.

<sup>5</sup> Reynolds's System of Medicine, vol. i. p. 698.

led to believe and hope, however, that few omissions to refer to records of notable cases will be found.

All the cases of hereditary chorea referred to in my paper on that subject in the December number of this JOURNAL can be properly included in this present consideration of chorea in the adult. I have, with a couple of exceptions, omitted reference to them because of the very recent date of that publication.

A desire to study the lessons that might be drawn from a considerable collection of cases of this rather obscure and illy understood phase of chorea, led me to address to the chief medical officers of a number of hospitals for the insane a circular letter asking for information upon the subject, with reports of any cases at present in these hospitals. From answers received to this circular I am enabled to publish notes of thirty-three cases besides those of six other cases from this hospital, making in all thirty-nine cases for consideration.

The plan which seems most convenient and systematic for the recording of these cases is to mention in succession all cases found in each particular hospital, first giving the following points of information about that hospital:

1. Name of hospital or asylum.
2. Population of same.
3. Number of cases of chorea among the population.
4. Name and rank of the medical officer by whom the notes were furnished.

*Pennsylvania Hospital, Department for Insane, Philadelphia.* Population 397. One case. John B. Chapin, Superintendent.

CASE I. *Mania lapsing into dementia*.—Female, aged twenty-five years. Affected with chorea at the age of twenty years, with insanity at twenty-four years. Chorea exaggerated just after the advent of the insanity. Patient is of neurotic temperament; no rheumatism or heart trouble.

*Southwestern Lunatic Asylum, Marion, Virginia.* Population 200. Two cases. E. T. Brady, Assistant Physician.

CASE II. *Post-hemiplegic chorea accompanying dementia*.—Miss Mary B., aged thirty-five years, white, unmarried. Three years ago had a stroke of apoplexy, which caused total paralysis of the right side and loss of speech. She has, however, gradually regained faculty of speech and control of muscles of right side, except the right arm, which is still weaker than the left; her speech has improved slightly, and she is now able to articulate, but has amnesic aphasia. The right arm is now choreic, the motion beginning in the fingers and hand, and rapidly extending to the forearm and arm, pectoral and scapular muscles. Voluntary effort increases the jerking; motion does not entirely cease during sleep. The contractures, which usually follow long-standing hemiplegia, are beginning in this case, the hand being flexed slightly, but constantly on the forearm. No family history of insanity or chorea.

CASE III.—Luther K., male, white, aged twenty-two years. Fairly well developed; general health good; an imbecile; father demented; grandfather and uncle on mother's side insane; no history of chorea in parents or relatives. The choreic symptoms ordinary in character and general in their distribution—increased on voluntary effort, never altogether ceasing during waking hours. There is entire rest during sleep.

*Lunatic Hospital*, Boston. Population 190. Two cases. Theodore W. Fisher, Superintendent.

These cases represent no special form of insanity. Both are irritable or maniacal at times; emotional, hysterical, and noisy; no delusions.

CASE IV.—Female, aged fifty-six years; movements began five years ago; insanity about the same time; no history of heredity, but family history unknown. Patient had rheumatism, but there is no heart trouble.

CASE V.—Female, aged forty-three years. Was congenitally weak; date of beginning of insanity unknown, but is known to have been insane thirteen or fourteen years; chorea began many years ago; gets much excited, especially at the menstrual period.

*Mississippi State Asylum*, Jackson, Mississippi. Population 475. Two cases. T. J. Mitchell, Superintendent.

CASES VI. and VII.—White woman, aged thirty-five years, and colored man, aged sixty years. In both cases date of advent of chorea as well as of the insanity is unknown. No family histories. Both are free from organic heart trouble. Neither has had rheumatism.

*Eastern Michigan Asylum*, Pontiac, Michigan. Population 891. Three cases. C. B. Burr, Superintendent.

CASE VIII.—Man, aged sixty-five years. Choreia appeared coincidentally with insanity about eleven years ago following hemiplegia, which was ascribed to exposure in the water; his movements are very exaggerated, and interfere with locomotion; no family history; no heart trouble or history of rheumatism.

CASE IX.—Woman, aged forty-eight years. Has been choreic eighteen years; insanity has existed about the same length of time. Movements are so aggravated as to interfere with locomotion. Her mental and nervous trouble followed disappointment in marriage; mother and maternal grandmother were neurotic and father intemperate; no heart trouble or history of rheumatism.

CASE X.—Female, aged fifty-nine years. Admitted to the asylum three and a half years ago, suffering at that time from confirmed mental impairment. Choreia had not been perceived previous to her admission, but it was doubtless present. It has increased in severity slowly ever since she came under treatment. Mother died of apoplexy, and father of consumption. No heart trouble or history of rheumatism.

*Illinois Central Hospital for the Insane*, Jacksonville, Illinois. Population 920. One case. H. F. Carriel, Superintendent.



CASE XI.—Female affected with dementia; nothing known of her ancestry; said to have been taken from an orphan asylum when seven years old.

*Arkansas State Lunatic Asylum*, Little Rock, Arkansas. Population 408. One case. P. O. Hooper, Superintendent.

CASE XII.—A negro, aged thirty years. Dementia; no active symptoms; a slight degree of right hemiplegia; patient thinks chorea began eighteen months ago, probably since he became insane.

*Alabama Insane Hospital*, Tuscaloosa, Alabama. Population 1006. Three cases. E. D. Bondurant, Assistant Physician.

CASE XIII.—Male, aged forty-eight years. Admitted in 1862 suffering from chorea and melancholia with delusions; is now demented and in feeble health; choreic movements are still well marked; no history of rheumatism; no heart disease; no history previous to admission.

CASE XIV.—Male, aged forty-five years. Admitted in 1878, then suffering from chorea, and being far advanced in dementia. Unable to give an account of himself; history previous to admission unknown; has valvular heart disease.

CASE XV.—Female, twenty-three years old; melancholia, with delusions and dementia; chorea developed three years ago; has had rheumatism, and now suffers from cardiac valvular insufficiency. Father insane.

*Insane Asylum of Louisiana*, Jackson, Louisiana. Population 494. One case. G. L. Perkins, Superintendent.

CASE XVI.—Female, aged forty-six; no history.

*Iowa Hospital for the Insane*, Independence, Iowa. Population 800. Two cases. Gershom H. Hill, Superintendent.

CASE XVII.—Matilda B., widow, aged seventy-two, mother of eight children; husband was a physician. She has been choreic fifteen years and insane during the last five years; fair general health but nervous and timid; exercises daily and is able to feed and dress herself; father and mother were insane—the former for ten years; brothers and sisters are very nervous, but it is not known that any member of the family was choreic.

CASE XVIII.<sup>1</sup>—Mary S., aged fifty-five, married, but has never borne a child; chorea began insidiously twelve years ago and has steadily increased, until she is now hardly able to walk, feed or dress herself; mental impairment, first noticed two years ago, has slowly increased up to the present time. An uncle is afflicted with chorea, and a brother is seriously threatened with the same disease.

Dr. Hill thinks that the hearts in both these cases are, to some extent, affected.

<sup>1</sup> Referred to in a paper on Hereditary Form of Choreia. AMERICAN JOURNAL OF THE MEDICAL SCIENCES, December, 1889.

*State Lunatic Asylum, Utica, New York.* Population 643. One case. G. Adler Blumer, Superintendent.

CASE XIX.<sup>1</sup>—Female, aged fifty-six, unmarried; insanity began in 1884, and was coincident with the appearance of chorea. On admission, mental condition was that of melancholia; she has since become somewhat demented. Chorea has gradually increased since insanity began. Patient's mother and maternal cousin had chorea. In the case of the mother the chorea came on during the last years of her life (a number of years after the birth of the patient). She has no heart trouble and never had rheumatism.

*State Asylum for the Insane, Stockton, California.* Population 1604. Three cases. Hiram N. Rucker, Superintendent.

Dr. Rucker makes the following observations on these three cases: They are all females, aged respectively, twenty-two, thirty-nine, and thirty-seven; none has heart disease. The following notes are from the commitment papers which accompanied the patients upon their admission to the hospital:

CASE XX.—Female, single, aged twenty-two, admitted June, 1888. Evidence of insanity; leaves home and wanders around aimlessly; weeps without cause; imagines she and others are to be killed; suicidal; has been insane two and a half years; mother was insane.

CASE XXI.—Female, single, aged thirty-nine, admitted in 1876. Refuses food; unable to care for herself. She has been more or less afflicted since childhood; father died in an insane asylum.

CASE XXII.—Female, married, aged thirty-seven. Wild and incoherent in talk and actions; insanity increasing; an aunt insane. Cause of insanity is stated to be chorea.

*Northern Michigan Asylum, Traverse City, Michigan.* Population 625. One case. James D. Munson, Superintendent.

CASE XXIII.—Male, aged sixty-five; was subject to epileptic fits during a period of five years between the ages of fifty-four and fifty-nine. He was admitted October 26, 1887, since which time he has been free from convulsions; antecedents unknown. No information in regard to cause and duration was obtainable; no heart disease or history of rheumatism.

*Minnesota Hospital for the Insane, St. Peter.* Population 967. One case. J. H. James, Assistant Physician.

CASE XXIV.—Male, aged fifty-five; chronic mania; duration ten years; had an attack of insanity at the age of thirty-six. Symptoms of chorea are gradually disappearing since his admission; has had rheumatism, but there is no organic heart disease.

*Kansas State Insane Asylum, Topeka, Kansas.* Population 729. Four cases. B. D. Eastman, Superintendent.

CASE XXV.—Male, aged forty-four; chronic delusional insanity, with violent homicidal propensity. He was first affected with chorea

some time during his service in the late war, and he has never been free from the affection since that time; the disease is regarded as being due to exposure. He first became affected with insanity four years ago. Chorea has become exaggerated since the existence of the insanity. He married after he became choreic; may have had rheumatism while in the service; no heart trouble.

CASE XXVI.—Female, aged fifty-six; chronic melancholia, with considerable degree of dementia at the present time. Insanity of five years' standing. Chorea has existed a good many years—not definitely known—but much longer than the insanity. Has had rheumatism; no heart trouble.

CASE XXVII.—Male, single, aged thirty-one; chronic mania, with dementia. Insanity of some eight or nine years' duration; no information as to how long affected with chorea. No history of rheumatism; normal heart.

CASE XXVIII.—Female, aged forty-two; chronic melancholia, with suicidal propensity; chorea of ten years' standing; insanity of some three years' duration. Chorea existed before the marriage of patient and came on at the time of, or shortly after, an attack of acute rheumatism. Paternal aunt, uncle, and cousin insane.

Dr. Eastman tells me that there is a young man in the institution who had an attack of acute rheumatism last winter, during which he was choreic, but with the recovery from rheumatism the choreic condition disappeared.

This, I take it, must have been very like the acute attacks of chorea often seen in children who are suffering from rheumatism, or who have about recovered from it.

*State Hospital for the Insane, Danville, Pennsylvania.* Population 900. Six cases. C. B. Mayberry, Assistant Physician, first three cases; Theodore Diller, Assistant Physician, second three cases.

CASE XXIX.<sup>1</sup>—Male, aged sixteen years. Had chorea for ten years; brought to hospital because of excitement; during excited periods had but very slight manifestations of chorea. There are periods of varying length, during which he is free from chorea, but subject to frequent epileptic seizures. Never has a fit during the time the choreic symptoms are active. No family history of chorea, but history of nervous temperament and insanity. No heart disease; never has had rheumatism.

CASE XXX.—Male, aged twenty-three years. Imbecile with excitement; choreic since early childhood; movements very marked at the time of admission. Family of a nervous temperament, and with a history of insanity. No heart disease or history of rheumatism.

CASE XXXI.—Male, aged fifty-three years. Dementia secondary to mania. Family history shows insanity. Chorea commenced about twenty-four years ago following typhoid fever and rheumatism, which he contracted in the army.

CASE XXXII.—Female, aged twenty-six years. Imbecile; father an "alcoholic"; mother died of consumption; said to have been "loose" in

<sup>1</sup> AMERICAN JOURNAL OF THE MEDICAL SCIENCES, December, 1889.

morals. Patient has been feeble-minded and choreic since early childhood. She became unmanageable at home on account of petulant, quarrelsome nature, and was disposed to seek improper male companions. She has small physique; receding forehead. Two sisters died of phthisis. Four sisters and four brothers living, one sister being a patient in this hospital—admitted in 1878 at the age of twenty years and is now a case of chronic melancholia with phthisis.

Our patient is markedly choreic—movements typical—all muscles affected and equally. Speech is difficult and halting. Cessation of movements during sleep; says she cannot remember when she was not affected with the “nervous movements,” and that she was unable to walk until she was six or seven years old.

CASE XXXIII.—Female, aged forty-one years. Dementia secondary to melancholia attonita. Supposed cause of insanity: loss of two children within six days. Her mother was insane, the malady being of a periodic type. Upon admission (in 1878) she was a case of melancholia, but subsequently became excited, destroying clothing, bedding, etc. At present she is well advanced in dementia. She was slightly choreic upon admission, but how long before that time the condition existed is not known. Choreic movements not noted when patient is lying down quietly. Any voluntary action is executed with difficulty and in style peculiar to choreics. The movements are well seen at meal-time as patient conveys food to her mouth. Movements are entirely suspended during sleep.

CASE XXXIV.<sup>1</sup>—Female, aged forty-seven years. Weak-minded; mother of four children; has been affected with chorea for the past six or eight years; rather spare frame, and somewhat above average height. Father, grandfather, brothers, sisters, and a son choreic. Physical condition is fair; chorea well marked; cessation during sleep.

*Indiana Hospital for the Insane*, Indianapolis, Indiana. Population 1530. Five cases. C. E. Wright, Superintendent.

CASES XXXV., XXXVI., XXXVII., XXXVIII., and XXXIX.—Three males, aged respectively fifty-five, forty-seven, and forty-six years; two females, aged respectively fifty-three and thirty-seven years. They are all cases of dementia. No exaggeration of choreic symptoms noted immediately before or just after the advent of the insanity. Duration of disease and family histories in these cases are unknown; hearts in all five cases affected, and all have histories of rheumatism.

*State Lunatic Asylum*, Fulton, Missouri. Population 500. No case. W. K. Rodes, Superintendent.

*Longview Asylum*, Carthage, Ohio. Population 797. No case. C. A. Miller, Superintendent.

*State Asylum for the Insane*, Warren, Pennsylvania. Population 686. No case. John Curwen, Superintendent.

*Central Hospital for the Insane*, near Nashville, Tenn. Population 430. No case. John Collender, Superintendent.

*Maine Insane Hospital*, Augusta, Maine. Population 600. No case. H. B. Hill, Superintendent.

<sup>1</sup> Ibid.

*Iowa Hospital for the Insane*, Des Moines, Iowa. Population 707. No case. H. A. Gilman, Superintendent.

In 23 hospitals for the insane, distributed over a wide extent of territory and containing a population of 16,499 insane persons, we find there are 39 cases of chorea, of which 16 are males and 23 females. Exclusive of Case XI., where the age is not given, we find the youngest person is 16 years old and the eldest 72 years. The average age is  $43\frac{24}{38}$ . The average age of the men is  $44\frac{1}{6}$ , that of the women  $43\frac{17}{12}$ . 29 of the cases are of persons 35 years of age or over, and of these 29 we find 13 are 50 years of age or over. In 14 cases there is a family history of insanity or a tendency to nervous affection, and in 3 of these we find chorea has been directly inherited.

Among thirty-two cases, in which the form of insanity is recorded, we find there are eighteen cases of dementia (Cases I., II., X., XI., XIII., XIV., XV., XIX., XX., XXVI., XXVII., XXXI., XXXIII., XXXV., XXXVI., XXXVII., XXXVIII., XXXIX.), of which three (I., XXVII., XXXI.) are secondary to mania, five (XIII., XV., XIX., XXVI., XXXIII.) to melancholia, and nine (X., XI., XIV., XX., XXXV., XXXVI., XXXVII., XXXVIII., XXXIX.) to forms of insanity the names of which are not given, and one to hemiplegia. Four (III., XXIX., XXX., XXXII.) are recorded as cases of imbecility. Two (IV., XXXIV.) are noted as emotional, childish, and feeble-minded. Two (VIII., XII.) might be considered cases of post-apoplectic insanity, and one (XXV.) as a case of chronic delusional insanity. Two (XXII., XXIV.) are cases of mania—one chronic and one acute. Two (V., XXI.) are congenital, and one (XXVIII.) is a case of melancholia.

In 28 cases, in which either or both the questions in the circular relative to rheumatism and organic heart disease are answered, we find that of 14 cases a negative reply is given to both questions; of 7 both questions are answered in the affirmative; of 3 the first received an affirmative and the second a negative answer; and of 3 more the second question is answered in the affirmative, while the first is unanswered; of 1 case the second receives a negative reply, while the first is unanswered.

39 cases of chorea in a hospital population of 16,499 insane persons would give a proportion of 1 choreic among every  $423\frac{2}{3}$  insane; say, roughly, 1 to every 425.

Considering the number of asylums located in all parts of the country from which these cases are taken, it seems to me it would be reasonable to infer that the proportion of 1 choreic among every 425 insane would hold good of the entire insane population in hospitals in this country.

Considering the 16 cases, in which the length of time which the patients were affected with chorea is stated, we find the shortest period

	Name of Hospital.	Hospital population.	Number cases of chorea.	Age.	Sex.	Form of Insanity.	Length of time affected with insanity.	Length of time affected with chorea.	Family history of insanity.	History of direct hereditary transmission of chorea.	History of rheumatism.	Presence of organic heart trouble.	Remarks.
I.	Pennsylvania Hospital, Department for Insane, Philadelphia.	397	1	25	F.	Dementia secondary to mania.	1	5	.....	.....	No	No	Patient of neurotic temperament.
II.	Southwestern Lunatic Asylum, Marion, Va.	200	2	35	F.	Post-hemiplegic dementia.	...	...	None.	No	...	...	
III.	Do.	...	...	22	M.	Imbecility.	...	...	Maternal uncle and grandfather insane, father demented.	No	...	...	
IV.	Boston Lunatic Hospital	190	2	56	F.	No special form; patient is erratic, emotional, irritable.	5	5	.....	.....	Yes	No	
V.	Do.	...	...	43	F.	Congenitally weak-minded.	13-14	Long time	.....	.....	...	...	Gets much excited, especially at the menstrual period.
VI.	Mississippi State Lunatic Asylum, Jackson, Miss.	475	2	35	F.	.....	...	...	No history	.....	No	No	Colored person.
VII.	Do.	...	...	60	M.	.....	...	...	.....	.....	No	No	
VIII.	Eastern Michigan Asylum, Pontiac, Mich.	891	3	65	M.	Insanity came on after an attack of hemiplegia.	11	11	.....	.....	No	No	
IX.	Do.	...	...	48	F.	.....	18	18	Yes.	.....	No	No	Movements very exaggerated.
X.	Do.	...	...	59	F.	Dementia.	3½	Long time	Mother died of apoplexy.	.....	No	No	Choreic movements slowly increasing.
XI.	Illinois Central Hospital for the Insane.	920	1	...	F.	Dementia.	Long time.	Long time.	.....	.....	...	...	Said to have been taken from an orphan asylum at the age of seven.
XII.	Arkansas State Lunatic Asylum, Little Rock	408	1	30	M.	Apoplectic.	...	1½	.....	.....	...	...	Had right hemiplegia.
XIII.	Alabama Insane Hospital, Tuscaloosa.	1006	3	48	M.	Dementia secondary to melancholia	27	27	.....	.....	No	No	Movements well marked.
XIV.	Do.	...	...	45	M.	Dementia.	11	11	.....	.....	...	Yes	
XV.	Do.	...	...	23	F.	Dementia secondary to melancholia	...	3	Father.	.....	Yes	Yes	
XVI.	Insane Asylum of Louisiana, Jackson, La.	494	1	46	F.	.....	...	...	.....	.....	...	...	No history.
XVII.	Iowa Hospital for the Insane, Independence, Iowa	800	2	72	F.	.....	5	15	Father and mother insane.	No	...	Yes?	Brothers and sisters nervous.
XVIII.	Do.	...	...	55	F.	.....	2	12	.....	Uncle and brother.	...	Yes?	Chorea steadily increasing.
XIX.	State Lunatic Asylum, Utica, New York.	643	1	56	F.	Dementia secondary to melancholia	5	5	.....	Mother & maternal cousin.	No	No	Chorea gradually increasing.

XX.	State Asylum for the In-	1604	3	22	F.	Dementia	2½	...	Mother insane.	.....	...	Cause of insanity, her-
XXI.	Do.	...	...	39	F.	Congenital.	...	...	Father.	.....	...	edity.
XXII.	Do.	...	...	37	F.	Mania.	...	...	Aunt.	.....	...	Cause of insanity, chorea.
XXIII.	Northern Michigan Asy-	625	1	65	M.	.....	...	...	.....	.....	No	Had epileptic fits between
XXIV.	lun, Traverse City.	967	1	55	M.	Chronic mania.	10	Chorea.	.....	.....	Yes	ages of 54 and 59.
XXV.	Minnesota Hospital for	729	4	44	M.	Chronic delusional	4	25	.....	.....	No	Chorea exaggerated
	Insauc, St. Peter, Minn.					insanity; very			.....	.....	Yes	since advent of in-
XXVI.	Asylum, Topeka, Kan.	...	...	56	F.	Dementia second-	5	Much	.....	.....	No	sanity.
	Do.					ary to melancholia		longer	.....	.....		
								than in-	.....	.....		
XXVII.	Do.	...	...	31	M.	Dementia second-	8-9	...	.....	.....	No	
						ary to mania			.....	.....		
XXVIII.	Do.	...	...	42	F.	(chronic).	3	10	Paternal aunt,	.....	...	Chorea appeared imme-
						Melancholia with			uncle, and	.....		diately after an attack
						suicidal propensity			cousin.	.....	No	of rheumatism.
XXIX.	State Hospital for the	900	6	46	M.	Imbecility.	Congeni-	10	Yes.	.....	No	Epileptic convulsions
	Insauc, Danville, Pa.						tal.		.....	.....	No	noted when choreic
XXX.	Do.	...	...	23	M.	Imbecility.	Probably	Since	Yes.	.....	No	movements cease.
							congeni-	early		.....		
							tal.	childhood.		.....		
XXXI.	Do.	...	...	53	M.	Dementia second-	Long	24	Yes	.....	Yes	Chorea came on after
						ary to mania.	time.			.....	No	attack of rheumatism.
XXXII.	Do.	...	...	26	F.	Imbecility.	Congeni-	Congeni-	Father alcoholic;	.....	No	Family history of
							tal.	tal.	no connection.	.....	...	phthisis
XXXIII.	Do.	...	...	41	F.	Dementia second-	11	Longer	Mother.	.....	...	Cause of insanity, loss of
						ary to melancholia		than 11		.....		children.
								years.		.....		
XXXIV.	Do.	...	...	47	F.	Emotional, feeble-	6	8	.....	Grandfather,	No	Movements well-mark-
						minded.				father,	No	ed; cessation during
										brothers, and	Yes	sleep.
XXXV.	Indiana Hospital for In-	1530	5	55	M.	Dementia.	...	...	.....	.....	Yes	
	sauc, Indianapolis, Ind.									.....	Yes	
XXXVI.	Do.	...	...	47	M.	Dementia.	...	...	.....	.....	Yes	
XXXVII.	Do.	...	...	46	M.	Dementia.	...	...	.....	.....	Yes	
XXXVIII.	Do.	...	...	53	F.	Dementia.	...	...	.....	.....	Yes	
XXXIX.	Do.	...	...	37	F.	Dementia.	...	...	.....	.....	Yes	

Population 500 (report of 1882). No cases of chorea.

“ 797. No cases of chorea.

"	0.86.	"	"	"
"	0.86.	"	"	"

“ 430.  
“ “  
“ “  
“ “

“	600.	“	“	“	“
“	707	“	“	“	“

“ 707.”

State Lunatic Asylum, Fulton, Mo.

Longview Asylum, Carthage, Ohio.

State Hospital for Insane, Warren, Pa.

Central Hospital for Insane, Nashville, Tenn.

Maine Insane Hospital, Augusta, Maine.

**Iowa Hospital for Insane, Des Moines, Iowa.**

given to be a year and a half, the longest twenty-seven years, and the average nearly twelve years.

In 18 cases the length of time in which insanity was supposed to have existed is given; the shortest period stated is one year, the longest twenty-seven years, and the average about eight years.

The congenital cases are not taken into consideration in calculating either of the above averages.

The difficulty of obtaining accurate histories in these cases, the large majority of which are pauper insane, must not be overlooked. I have no doubt that, owing to this difficulty, many of the figures given as to length of time of duration of chorea and of insanity are inaccurate, but with certain reservations the figures above given may be accepted. I believe that if it were possible to collect exact data on these points a greater difference in these figures than that here given would be found to be true.

It is a significant feature of this part of the table that in no case is it recorded that the insanity existed before the chorea, although in several cases (IV., VIII., IX., XIV., XIX.) the two affections appeared coincidentally.

It will be observed that while no large number of choreics is found in any one hospital for the insane, yet there are comparatively few hospitals that have no case of this kind among their populations.

If these 39 cases teach anything, they surely teach that in long-standing chorea there is a strongly marked tendency to active insanity or mental impairment of some sort, both of which ultimately terminate in a condition of dementia. The evidence supporting this proposition is the fact of the existence of 1 case of chorea among every 425 insane people. This proportion of choreics to insane persons must be many times greater than that to be found in the general population outside of hospitals the country over.

The chronic form of chorea must, I infer, be of exceeding great rarity among our ordinary population, else we would not find such meagre accounts of it, or its existence wholly ignored by systematic writers on nervous and mental disease.

Coming now to consider the sex in these cases, we have seen that 16 are males and 23 females—about two-thirds as many of the former as the latter. This is probably not far from the proportion of one sex to the other, as seen in the ordinary chorea of childhood.

There is much to consider in the forms of insanity affecting these cases. Dementia, we have seen, is the mental condition found most frequently, and in the majority of cases it is recorded as being secondary to other forms of insanity. In one of Brady's cases (II.) there are noted symptoms of mental deterioration, common after an attack of apoplexy, and with the complication of *local* choreic movements. Cases VIII. and



XII. are not stated to be cases of dementia, but it is not unlikely they will terminate in that condition; but in both these cases the insanity was due to an attack of apoplexy, and most likely the chorea too. Four cases are imbeciles. Several others are congenital cases, and it is a significant fact that we find only two cases of mania, and one of these in the chronic form—probably with some degree of dementia. There is but one case of melancholia.

From the table it would appear chorea existed on the average about four years before symptoms of insanity were noted. The long time one or both these affections—insanity and chorea—have existed in many of the cases makes it fair to conclude that chorea, superadded to insanity, does not have a marked effect in shortening the life of the individual, but, on the contrary, the condition is compatible with a fair length of life with a moderate degree of physical health. In only one case is it noted that the choreic movements are decreasing, in all others they are slowly increasing or stationary.

A family history of insanity in these cases is probably found about as frequently as we find it among the ordinary population of hospitals for the insane.

In the majority of the cases the cause of the chorea and insanity is not given. Of the causes stated we find a considerable variety. Cases XXVIII. and XXX. coming on immediately after an attack of rheumatism would probably come within the meaning of the term rheumatic insanity as used by Clouston, Bucknill and Tuke, Griesinger, and others. It would correspond to the chorea arising in children during, or just after, an attack of rheumatism, with this difference and addition, that in these two cases the chorea became chronic and mental symptoms ensued.

Eastman's case, in which chorea attacked an adult who was suffering from acute rheumatism and terminated in a short time, would seem to be identical with the chorea of children.

In only three cases do we find a direct hereditary transmission of chorea to have occurred, but Dr. Hill notes that two patients have been inmates in the Iowa Hospital, in which this hereditary transmission of the affection appears to have taken place. I have not included these two cases in the table, because they are not residents in the hospital. In only one case (XXII.) is chorea given as the cause of insanity, but it seems reasonable to conclude that in all these cases chorea alone, or in conjunction with other etiological factors, operated more or less powerfully in the causation of the various mental deflections. I maintain this deduction principally from the fact, that in these cases, without exception, the insanity never appeared before the chorea. In a few cases the two were noted coincidently, but in the large majority of cases the mental disorder became apparent only after the patient had been choreic a considerable length of time—the average length of this period,

as shown by the table, being about four years. Why should not a person become insane who is subject to this distressing affliction? The embarrassments, the feelings of helplessness and despair, the constant attention to self—the constant dwelling of the mind on the affection—ever present—these, together with the feeling of despondency in the knowledge that his usefulness in life is over, and that he is only an object of pity, charity, and care for his friends would seem to me to be potent factors in bringing about gradually a certain mental impairment or enfeeblement of the mind which would progressively increase, and finally end in dementia.

In cases of post-hemiplegic chorea, it would seem most plausible to account for the movements, as well as the mental symptoms, on the hypothesis that there is a coarse irritation or destruction of some portion of the motor area of the brain or the motor tracts, proceeding from that region. In cases where the choreic movements are localized, and confined to the side or the single limb which had been paralyzed at the time of the apoplexy, this, I believe, to be the only conclusion which can be supported logically.

W. Bevan Lewis's careful report of a case of localized paresis with choreiform movements is of great interest in this connection. The finding of local cortical disease *post-mortem* made his record complete. I believe, however, that in all cases of chorea an organic lesion of the brain (and in some cases, perhaps, of the cord also) exists. This lesion may be gross or fine, and would in some cases be easily demonstrated *post-mortem*, while in other cases it might defy detection by our present means of investigation. Of course, only careful *post-mortem* investigations can establish the truth or the falsity of this theory.

In my first paper I expressed my adherence to the view which, I think, is now commonly accepted, that chorea is a disease of the brain, and essentially of the motor apparatus—whether of the ganglia or the associated nerve-tracts. However, if a general sclerosis of brain and cord should in a given case be the particular lesion present, it would not be unreasonable to believe that the same diseased process operating on the analogous parts of the cord would intensify or exaggerate, in a measure, the choreic movements above what they would have been had the brain alone been the seat of disease. That the cord is primarily or essentially the seat of disease does not, in the light of our present knowledge of the subject, seem to be a view which can be consistently upheld. The evidence upon which rests the theory that the lesion is primarily in the motor apparatus of the brain is ingenious, but cannot well be discussed in this place.

In the causation of insanity among choreics it would appear, generally, that two causes operate principally, namely, the psychological causes I have enumerated, *plus* some organic lesion—coarse or fine—of the brain.

We have seen that one-third of the cases have family histories of insanity. This would seem to show that in persons with malformed, impaired, or aberrant brain development there is a peculiar susceptibility to chorea. Among 16,000 insane persons there must be several hundred cases at least, in which a family history of insanity can be traced. Only the comparatively small number of 13 have developed chorea. What is the peculiar susceptibility or especial vulnerability in these cases having a family history of insanity? The correct answer to this query might go far in the way of shedding light upon the cause of insanity itself. The two cases (XXIII. and XXIX.), in which epilepsy and chorea existed in the same person, are of especial interest in this connection, as showing a close connection between these two diseases of the motor apparatus of the brain.

Let us now give some attention to rheumatism as a cause of chorea and insanity. We have good authority for the statement that rheumatism may act as the direct cause of insanity (Clouston, Griesinger, Bucknill and Tuke). The evidence that rheumatism is a direct cause of chorea in children is so overwhelming that the subject need not be discussed here; the points in dispute, at present, being as to the relative frequency with which the cause operates, and the *modus operandi* by which rheumatism, or product thereof, produces chorea. The claims made by some that as many as from 20 to 50 per cent. of chorea in children is due to rheumatism is not sustained by the most careful of the recent investigations in this field. Probably 8 per cent. or 10 per cent. will be found to be the proportions which would represent the ideas of the later authorities. Broadbent and Hughlings-Jackson, and others who have labored so well in this field, have maintained the theory that chorea is caused by many minute emboli which are detached from the valves of the heart during or soon after an attack of rheumatism. The evidence adduced in support of this proposition consists of macroscopic and microscopic appearances in a number of cases, and we find to-day the theory accepted by the great majority of the profession.

Now, on the other hand, I think it is proven beyond the peradventure of a doubt that chorea may arise in children who have been free from rheumatism in any form, and who possess normal hearts. Some of the earlier investigators, in their enthusiasm, erred in pushing too far the application of the "embolic theory"—some, indeed, going so far as to say that this was the sole cause of chorea.

In our table ten cases are reported as having had rheumatism, seven of whom now have heart disease. In two of these cases it seems most probable that rheumatism and heart disease were the causes of the chorea, and the chorea in turn of the insanity. In some, indeed all the other eight cases, the rheumatism may have been the cause of chorea also; but it must be borne in mind that rheumatism is a common disease,

and that it is by no means certain that in a case of chorea with history of having had rheumatism, that the chorea has been caused by the rheumatism, or resultant heart affection. An eminent writer has gone so far as to maintain that as many as 20 per cent. of the general population have had rheumatism. This being about the same proportion as he found in his collection of cases of chorea, the conclusion was drawn that rheumatism acts not at all as a cause producing chorea.

The large number of cases in our table in which the patients are free from heart trouble and have negative histories as to rheumatism, makes the conclusion inevitable that in the majority of the thirty-nine cases rheumatism or heart trouble does not figure as an etiological factor. Probably the proportion of rheumatics among these cases would not differ greatly from that found among the same number of children. In this respect the hereditary form of chorea differs, as we have seen before, from other forms of the disease found among adults in that rheumatism is seldom an antecedent.

It would appear, from all that can be gathered from the reports of these cases, that a considerable variety of causes may operate to produce chorea; that in many cases two or more causes act together. These causes could be divided into predisposing and exciting. Inherited mental or nervous weakness or deterioration being the most prominent under the first head, and rheumatism, with heart disease, apoplexy, fright, physical distress, exposure, etc., being some of the more conspicuous examples in the second division.

Many, or, indeed, most of the causes which will produce chorea are also among the common causes of insanity; but chorea itself is a cause of mental disease. Hence it would be only logical to expect insanity to ensue in these long-standing cases of chorea.

CONCLUSIONS.—1. There is to be found among the insane in hospitals and asylums in this country 1 choreic among each 425 of population.

2. In all long-standing cases of chorea there is a more or less marked tendency to mental deterioration which, in many cases, progressively increases, and finally terminates in dementia.

3. Many cases, even when there exists a considerable degree of mental impairment associated with chorea, enjoy fair physical health and apparently live almost as long as they would have done had they been free from the mental and nervous affections.

4. The proportion of male to female adults is in about the same ratio as is found to exist between the sexes in children affected with acute chorea.

5. The same causes that are known to produce chorea in children are found to operate in causing the disease in adults; but in the case of the latter, additional causes peculiar to adult life, such as apoplexy, anxiety, etc., are capable of producing the disease.

Emotional causes may produce chorea when operating on a person already predisposed to the affection.

A person having a family history of insanity, chorea, or epilepsy, or, indeed, any nervous affection, is predisposed to an attack of chorea.

Persons popularly known as "nervous" are especially predisposed to an attack of chorea; but when the disease is noted to exist in phlegmatic robust persons it is probably the result of rheumatism or coarse brain lesions.

6. Persons of adult years are sometimes, though rarely, attacked with chorea while suffering from rheumatism—the disease being of about the same character as that commonly observed in children, but more likely to become chronic.

7. As to the pathology, the following appear to be reasonable conclusions:

(a) A number of cases arise from, and are caused directly or remotely by, an attack of rheumatism.

(b) In the majority of cases heart disease is absent and there is a negative history as to rheumatism.

(c) Coarse lesions, acting as irritants to the motor cells of the brain or the tracts proceeding therefrom, are in some cases the prime cause. Such lesions most commonly are clots recent, organized, or broken down.

8. Chorea is to be found at all ages.

9. Persons may inherit the disease directly.

10. The disease may be congenital.

11. Chorea and epilepsy are intimately related to each other. Epileptic convulsion (Jacksonian) may be confined to a single member; the same is true of choreic convulsions.

I wish to thank heartily all the gentlemen who so kindly and promptly replied to my circular. Many of the letters were of considerable length, and the preparation of most of them necessitated the expenditure of a good deal of time and labor. Some of the reports are very brief because little or nothing was known of the patient's history, but each is of some value, as illustrating at least a few points of interest in connection with the subject.

For valuable assistance in correcting proof I am indebted to my colleagues, Drs. G. R. Trowbridge and Hugh B. Meredith of this hospital.

## THE PLACE OF THE SEA VOYAGE IN THERAPEUTICS.

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THE fact that travel is a powerful agent for the restoration of health was well known to the ancients. In a celebrated ode the poet Horace addresses the ship which was about to convey his friend Virgil to Greece for the benefit of his health:

Navis, quæ tibi creditum  
Debes Virgilium, finibus Atticis  
Reddas incolumem, precor,  
Et serves animæ dimidium meæ.

Among the precepts of Galen we find the statement, amply verified by the experience of subsequent generations, "In morbis longis solum vertere conducit." Yet the sea voyage, as we understand it when advising the invalid to try its efficacy, is an essentially modern idea, which has only been rendered practicable by the progress of navigation, by discovery, and by the application to travel of the comforts and conveniences of an age of science and civilization.

By a sea voyage the ancients would have understood a journey by ship around the shores of Italy, Sicily, or Greece, or, at most, a more adventurous cruise to Tyre or Alexandria or Massilia. To them the Bosphorus, on the one hand, and the Pillars of Hercules, on the other, marked off the limits of civilization and of practicable navigation, beyond which were darkness, peril, and barbarism. In the Middle Ages, before the discoveries of Columbus, Vasco di Gama, Tasman, Magellan, and other heroes of the ocean, the range of a sea voyage was hardly more extended. Even when discovery had opened up the path to the great Western world and to the Antipodes, it was long before distant voyaging became sufficiently familiar, safe, and comfortable to tempt the invalid from his home. Within the memory of persons still living the voyage to the Australian colonies was usually made in ill-founded little vessels of two hundred or three hundred tons burthen; five, six, and seven months were commonly required for the passage; the staples of diet were salt beef or pork and mouldy biscuits, and every gale involved great discomfort and often severe privations. Under such conditions the voyage for health was not likely to become popular. Now all is changed. The progress in ocean navigation during the past thirty years almost exceeds belief. Not a day passes without some magnificent steamship or stately clipper leaving our ports for the most distant parts of the earth. Two thousand tons for sailing vessels and four or five thousands for steamers is the usual burthen; the speed attained is frequently from twelve to fifteen knots per hour,

and the passage is now accomplished in weeks where formerly months were required. The comfort of passengers at sea, though still capable of improvement, has been very successfully promoted, and upon good lines life is hardly less pleasant than in the most luxurious home, the drawbacks being chiefly such as are inevitable to such a limitation of space as is inseparable from shipboard. Even the tempest has lost much of its terror, and its discomforts are reduced to a minimum upon the large, safe, and powerful vessels which now monopolize the passenger trade.

It is obvious that under such conditions as those just enumerated the sea voyage gets an excellent chance of exerting whatever therapeutic virtue it may possess, and there is no doubt that its popularity with invalids has advanced by leaps and bounds during the last two or three decades. Few favorite vessels now start for Australia or New Zealand without reckoning upon their passenger list several persons whose motive for travel is the pursuit of health. Some large trading vessels lay themselves out specially for this class of passengers, and many are the "steam-yachts" and "pleasure steamers" which strive to tempt the consumptive, the hypochondriac, or the jaded brain-worker to try the healing effects of a few weeks' or months' cruise upon the summer seas and amidst

The isles that gem  
Old ocean's purple diadem.

It is the purpose of the present paper to inquire how far this new fashion in medicine rests upon a solid foundation, to define its area of usefulness, to point out how it may be turned to the best account, and to indicate some of its dangers. In order to accomplish these ends we shall require to consider in succession :

- I. The climate of the sea ;
- II. The mode of life at sea ;
- III. The general influence upon health and disease of sea climate and sea life ; and,
- IV. The suitability of the sea voyage for certain definite maladies.

### I. THE CLIMATE OF THE SEA.

It is obvious that the climate of the sea must present great variations. Between the climate of the Arctic Ocean and the Bay of Bengal, between that of the Red Sea and the mid-Atlantic, great difference, consequent upon latitude, prevailing winds, and the proximity or distance of great continents must necessarily exist. Yet we may, without abuse of language, talk of a sea climate in a sense in which we cannot talk of a land climate. At sea, certain conditions having an important influence upon climate are invariable, viz.: a uniform flat surface, a uniform surface material, salt water, a free access of air, and freedom from the

various sources of atmospheric contamination which prevail more or less everywhere on shore. On land, inequalities of surface, mountain chains and deep valleys, affect the distribution of sunlight, radiation, evaporation, etc. Differences in surface-material—forest, lake, snowy summits, parched plains, cultivated fields—modify climate in a host of ways upon which it is unnecessary to dwell. Putrefaction, miasmatic exhalations, smoke, poisonous gases issuing from factories, sewage emanations combine to vitiate the atmosphere. Hence there is no such thing as a land climate in any strict sense of the word. A sea climate we may, within certain limits, correctly speak of, and its characters will be found to be: (1) Purity of the atmosphere; (2) Humidity; (3) Equability. Other minor points will presently be pointed out; but, speaking broadly, when we send our patients to sea, we should keep in view that we are subjecting them to a climate of which the leading characteristics are the purity, humidity, and equability of the atmosphere.

(1) Of the purity of the ocean air little need be said. That purity is as nearly as possible absolute. Once in a while a vessel upon the high seas is visited by a shower of fine dust, caught up, no doubt, by some atmospheric commotion on some neighboring continent and whirled out upon the ocean; but with such rare and insignificant exceptions, the air at sea presents no organic contamination whatever. It does contain something which it would be inaccurate to describe as an impurity—viz., “sea-dust”—fine particles of salt water blown about by the winds and forming an appreciable element in the air of respiration. This may, however, be safely eliminated from any enumeration of sources of impurity. High mountain air is also remarkably pure; but it may be safely affirmed, however paradoxical it may sound, that not even the keen air blowing round the icy dome of one of the higher Alps is so pure as the atmosphere of the ocean.

(2) Sea air is, as might be expected, everywhere somewhat humid. This is seen by its effects upon boots, clothing, books, etc., which frequently become mildewed at sea. The difference between the dry and wet bulb is usually from 2 to 4, and only exceptionally rises to 6 or 7. The relative humidity not infrequently exceeds 90, and occasionally even touches the point of saturation. The humidity, though everywhere considerable as compared with the average of continental climates, varies considerably. It is less in the bright and somewhat dry air of the northwest trade winds than in the leaden atmosphere of the zone of equatorial calms, where the steamy air reminds one of a vapor bath. Nevertheless, the variations of humidity at sea are much less than upon land, and (more important still) they are never sudden. The hydro-metric condition of the ocean air is a stable one.

(3) Upon the high seas temperature is exceedingly equable, the diurnal variation rarely exceeding  $4^{\circ}$  or  $5^{\circ}$ , whereas in the comparable equable



climate of the British Islands the diurnal variations is often  $15^{\circ}$  to  $20^{\circ}$ , and in less equable climates this figure is largely exceeded. The writer has seen the thermometer fall  $40^{\circ}$  in half an hour with a sudden change of wind at Melbourne. Not only are the changes of temperature from hour to hour and the differences between day and night trivial at sea, but the changes from day to day are remarkably small and fairly constant with the latitude. A sailing vessel running south from one of the English ports will take from twenty to thirty days to reach the equator, and the change of temperature during that time will not much exceed one degree per diem. It is hardly necessary to say that in a swift steamship the changes of temperature from day to day are much greater. This is one of the points most necessary to bear in mind when weighing the relative advantages of a steamer and a sailing ship. These remarks regarding the equability of sea air apply only to the open ocean. They are inapplicable to such inland seas as the Mediterranean or the Red Sea, where sudden and dangerous perturbations of temperature are far from uncommon.

We have hitherto only dwelt upon those climatic characteristics which are more or less common to all the high seas. We may now add others which, though hardly universal, are yet practically so, inasmuch as they are found in all regions likely to be traversed by the invalid. Foremost amongst these must be placed—

(4) Abundance of sunlight. The “sun-bath,” so justly lauded by the advocates of the high altitude treatment of consumption, may constantly be enjoyed at sea in great perfection. Clouds are, it is true, very frequent at sea, and the absolute freedom from cloud so common at Davos, St. Moritz, and in Colorado, is rare upon the ocean; but often, as, for example, in the trade wind belts, the cloudiness amounts to nothing more than a slight haze which acts as a grateful veil to mitigate the fervor of the sun. In the equatorial belt of calms cloudiness is the rule, but in the South Pacific the “brave west winds,” which there prevail so greatly to the advantage of the mariner, are usually accompanied by a bright atmosphere.

(5) Another characteristic of sea air worthy of note is the abundance of ozone, which probably exerts a powerful influence upon the nervous system.

(6) The last point to be noted is the high range of barometric pressure which prevails at sea and which adds its quota to the general equability of the ocean climate.

To sum up briefly this part of our subject: the climate of the sea is characterized by the purity of its air, by its humidity, by its richness in sunlight and ozone, and by its equability as regards (*a*) temperature, (*β*) hygrometric condition, and (*γ*) barometric pressure.

Before discussing the effects which such meteorological characteristics

may be expected to exert upon the organism, let us, as a necessary preliminary for the fuller understanding of the subject, look at the second point in our discussion—viz., the mode of life at sea. We shall then be better prepared to consider the combined influence upon the body in health and disease of sea climate and sea life.

## II. THE MODE OF LIFE AT SEA.

The most characteristic feature of life at sea is the combination of rest and passive exercise which it affords. The voyager enjoys complete muscular repose, while at the same time he is in constant motion. He is soothed by the first; exhilarated by the second. He enjoys in a manner hardly practicable on land repose without *ennui*, restfulness without stagnation. This peculiar combination of conditions on shipboard has hardly received the attention which it deserves, the element of rest commonly monopolizing attention to the neglect of the element of motion. Yet it can hardly be questioned that the combination of the two is in many conditions of the highest importance. A patient who is unable to take regular walking or riding exercise, and who is fatigued even by the motion of a carriage, can remain all day long in his easy chair on the deck (provided the weather be favorable), soothed by soft winds and cheered by the agreeable sense of constant progress. More robust patients can secure the requisite *quantum* of muscular exercise by regular walking or by joining in the various games which are devised and practised with much ingenuity on shipboard.

Persons who on shore are habitually energetic, become strangely inert on shipboard, the explanation being in part, at least, the fact that the motion of the ship satisfies their instinct of constantly doing something. Other factors, however, play their part in generating this restful feeling. It is difficult for those who have never taken a long voyage to realize how completely most of the commonest worries and excitements of life are withdrawn at sea. There are no newspapers, letters, or telegrams. There are no trains to catch, no appointments to keep; no visitors need be expected, no startling news need be apprehended. The morning brings no iron routine of duty to be faced; the evening brings few, and only the mildest excitements. In eating, sleeping, reading, conversation, and trifling amusements the time slips away. In some persons—such as men overtaxed by the labor and excitement of professional or commercial life, this restfulness is invaluable. Has it any drawback? Are tedium and *ennui* to be seriously dreaded?

The answers to these questions must depend upon the character of the patient; upon the nature of his ailment, his powers of self-amusement, the company in which he is placed, and upon the length, fortunes, and comfort of the voyage. No doubt there is much monotony on ship-

board. Sky and sea, though ever changing, are ever the same. One day succeeds another with but slight variety of scene, incident, or experience. Yet if the patient be moderately well, if he has a congenial companion, if he has the faculty of making friends with reasonable readiness, if he possesses a love of books, of science, or of music, he need never dread the tedium of a long sea voyage. A ship's company, though apt to split up in cliques, and to develop strange antipathies, is compelled by the exigencies of the case to be sociable. There is but one promenade—the deck; but one eating-room—the dining saloon; but one lounge for each sex—the smoking-room for gentlemen and (in some ships) the boudoir for ladies. Acquaintanceships are readily formed under such circumstances; friendships may follow. A community of occupation and amusement breaks down barriers and dissolves impenetrability. Music is a great bond of music amongst its devotees. Above all, a love of books and of science is an unfailing distraction. The opportunities for cultivating science on shipboard may seem meagre. In reality they are ample. The sky nightly offers itself for astronomical observation. Navigation may be studied. Every bucket of sea water contains material for a week's microscopy. A fishing hook may draw up a shark, a porpoise, or a dolphin; a petrel, a boatswain-bird, or an albatross may be snared. If it be retorted that for such studies the invalid has neither faculty nor strength, it may be rejoined that for some of them at least he has the strength, and that the love of such things grows by what it feeds on. A well-filled, well-disciplined mind is an incalculable boon to the invalid, whatever his malady, whether curable or incurable.

Sea life has, however, its inevitable drawbacks, and those must be freely allowed. Foremost amongst these must be reckoned the discomforts inseparable from a small and often overcrowded sleeping apartment. There seems no escape from this evil; but the passenger who can afford the high figure demanded for the exclusive use of a good cabin will find that he has made a very good investment for his money. Again, occupation and amusement are much restricted on shipboard. Many of the pleasures of life are absent. One traveller misses his club, another his horse, a third his garden. These things must be tolerated with as much philosophy as possible. Perhaps the most serious discomforts of all are those incident to long spells of bad weather, during the continuance of which amusement is at a standstill, exercise is impeded, food is served with difficulty, and sleep is broken. Yet these evils are apt to be too seriously apprehended by the landsman. During the voyage commonly undertaken for health, viz., that to the Antipodes, bad weather is certainly the exception, fine weather the rule. If average luck be met with, the voyager will in all probability have four fine days to one bad one. Further, one gets used to even rough weather at sea, and

after a couple of months' voyaging the traveller will readily tolerate a gale which would have caused him much discomfort and some suffering at an earlier stage.

This seems the most suitable opportunity for saying a few words upon the relative merits of a steamer and a sailing vessel, as the mode of life differs materially in the two. A steamer travels much more rapidly than a sailing vessel, and everything on board is at a correspondingly higher pressure on the former than on the latter. Passengers are usually more numerous on a steamer; they are commonly of a gayer class; amusements are more numerous and more boisterous; money circulates more freely, hours are later, noises more abound: there is greater speed, more definite progress, more life and animation; often better food, but less quiet, less space, less of the true marine flavor and quality of life. The constant noise of the engines and vibration upon a steamer are distressing to very nervous patients, and the smells from the machinery and the bilge-water are often very disagreeable. The points in favor of steamships are the superior *cuisine* which they commonly possess, the assurance of a regular and speedy voyage, and the avoidance of any prolonged delay in the region of the equatorial calms. On the whole, steamers are more suitable for the healthy; sailing vessels, if thoroughly comfortable and well found, for the invalid.

Let us now consider the third branch of our inquiry, viz.:

### III. THE GENERAL INFLUENCE UPON HEALTH AND DISEASE OF SEA CLIMATE AND SEA LIFE.

That influence may be summed up as (*a*) tonic and (*b*) sedative. The tonic influence is shown by augmented appetite and improved digestion and sanguinification. The sedative influence is shown by improved sleep and sometimes by a fall in the bodily temperature. That sea air and sea life should be a tonic is natural. The purity of the atmosphere, the long hours spent in the fresh air, the traces of iodine, bromine, and sodium that are found in the sea air, the abundance of sunlight and of ozone, the constant motion—all these are tonic conditions. The improvement of appetite and the gain in weight are usually very striking at sea. Sometimes this is preceded by a period characterized by languor and "biliousness," due to sea-sickness, changed diet, altered mode of life, and mental depression following the rupture of home ties; but this period is rarely long continued, and in the great majority of cases is succeeded by a period of great digestive activity. Flint records a case in which a gain in weight of ten pounds took place during the voyage across the Atlantic in a sailing vessel, and another case in which a gain of twenty-five pounds was effected during a voyage to China. The writer has known a healthy man gain ten pounds in a fortnight at sea, and has known a

consumptive gain from thirty to forty pounds during a voyage *via* the Cape to India. It is surprising how good the appetite keeps on shipboard, even in the warm latitudes, and how much more solid and heavy food is commonly consumed at sea in the tropics than could be tolerated during the prevalence of summer heat in the British Islands. The gain in weight at sea is often so phenomenal, that to explain it we must recollect the peculiar combination of vigorous digestive power with physical inactivity which there prevails. The voyager eats well and digests well, and the wear and tear of life being reduced to a minimum, he naturally grows fat.

The question will naturally arise whether this remarkable gain in weight is altogether wholesome, and whether bad consequences may not ensue upon landing? The answer to this must turn largely upon the amount of exercise which the voyager takes on shipboard. If he systematically neglects regular exercise, he may arrive in port too fat and "out of condition," like a horse that has been allowed to feed to excess on rich meadow grass; but if he practises a firm adherence to rule in the matter of walking exercise and a reasonable moderation in the use of the more fattening articles of food, no such evil result need necessarily follow. It would be well, however, if invalids at sea would recollect that the records of the weighing machine, which are received with such interest week by week, are not an infallible index of progress in health.

Sea air and sea life are also (*b*) sedative. This is the result of the humidity of the air, the high range of barometric pressure, and the equability of the sea climate as regards temperature and hygrometric condition. The conditions of life—the freedom from labor, worry, and excitement, and the monotony of occupation—are also in general of a sedative character. This sedative influence is shown by the improvement in sleep which usually follows after an initial period often marked by troublesome insomnia, and by the mitigation of nervous irritability.

Does the sea depress as well as soothe? Sometimes, but indirectly rather than directly. The idea that the ocean is a melancholy place finds wide expression in the literature of many nations, and is a natural view for a landsman. The lonely waste of waters, the moaning of the winds, the unbroken, monotonous expanse of sea and sky, the separation from humankind and human interests: these seem to make for melancholy. Yet so homelike may a ship become, and so close the ties between the ship's company, that life at sea is often much more lively and sociable than that led by a large proportion of persons on shore. If a patient is melancholy at sea, the fault must lie either with disease incapacitating him for society or natural disinclination withdrawing him from it, or he must be more than usually unfortunate in the character of his associates.

Regarding the general influence of sea climate and sea life upon

disease little can be said to advantage, speaking in the abstract. Suffice to say that the very general idea that a voyage tends to light up the slumbering embers of disease, and to transform chronic into acute conditions is not confirmed, but rather negatived, by the writer's experience. Instead of speaking of disease in general, it will be more to the purpose to pass on at once to the last division of our subject, viz.:

#### IV. THE SUITABILITY OF THE SEA VOYAGE FOR CERTAIN DEFINITE MALADIES.

The facts hitherto dwelt upon are uncontroversial, and will not be disputed by any one possessing a practical knowledge of the subject; but the applicability of the sea voyage to disease raises many interesting and difficult questions, regarding which there is a wide divergence of view. It will serve to clear the ground if we first exclude many types of disease, for which there is practical agreement that the sea voyage is unsuitable. It is unsuitable for all acute inflammatory conditions; it is unsuitable for all cases requiring regular surgical treatment; it is unsuitable for cases of insanity and for skin diseases; it is unsuitable for all persons who are, or are likely soon to become bedridden; for the very aged, for those greatly enfeebled from any cause, for those who can preserve health only by rigid adherence to a peculiar dietary, for those who have a special proclivity to sea-sickness. It is of very doubtful applicability to cases of organic disease of the heart, kidneys, or brain; but such cases must be judged upon their merits, no general rule being possible; and it is for the most part likely to prove injurious in that class of affections to which we apply the vague term "rheumatic." There remain the following cases in which the sea voyage has proved of signal utility, viz.: (a) Nervous breakdown; (b) impaired convalescence after pneumonia, pleurisy, one of the specific fevers, or surgical operation; (c) scrofulous affections of joints and glands; (d) hay-fever; (e) laryngitis; (f) consumption.

A few words will be sufficient regarding the first five classes, and then we shall deal more fully with the more difficult and debatable subject of consumption.

(a) In *nervous breakdown*, whether from overwork, worry, or intemperance, the effect of a sea voyage, if wisely regulated, is often of immense value. In such cases a sailing ship is, *ceteris paribus*, preferable to a steamer; congenial companionship is indispensable, and some variety of light and agreeable mental occupation should be regularly pursued. In milder cases of this kind, and in cases where time is limited, great benefit will probably accrue even from a short voyage to the Mediterranean or to the West Indies. A reasonable amount of comfort must be assured for such patients, or the voyage may have all its benefits counteracted.

(b) In *impaired convalescence* great benefit will often attend a sea voyage, provided the experiment be not made until all acute symptoms have disappeared. Sea life seems to afford in a typical form that combination of rest, change, and tonic influence which such cases demand.

(c) *Scrofulous cases*, especially if the patient be young, form one of the classes most decidedly benefited by a sea voyage.

(d) As might be expected, *a priori*, a sea voyage is a certain means of relief from *hay asthma*. Whether it renders subsequent attacks less probable is doubtful.

(e) *Laryngeal affections* are usually much benefited by the moist, equable air of the sea. The warm latitude suits such cases best, and the open ocean is better than such an inland sea as the Mediterranean.

(f) The case of *consumption* requires fuller treatment than the foregoing. That a sea voyage is often signally beneficial to consumption has long been known, and is quite indisputable; but the greatest difference of opinion exists regarding the indications for its adoption, and the medical press periodically teems with severe, and not wholly undeserved, strictures upon those practitioners (if such still exist) who order their consumptive patients indiscriminately to sea, without regard to the type or stage of the disease, the idiosyncrasy of the patient, or the hardships which sometimes await a feeble invalid on shipboard.

Let us first look at the evidence which is forthcoming upon the general question of the utility of a sea voyage in consumption. If a tithe of the evidence which must exist on this subject could be made available we should be excellently well informed in regard to it; but, unfortunately, the published statistics are for the most part meagre. Drs. C. J. B. and C. T. Williams made extensive trials of the sea voyage among patients, 72 per cent of whom were in the first stage, 11 per cent. in the second, and 16½ per cent. in the third. The majority of the patients went to and fro between either the Cape, Australia, or New Zealand and the home country, and in most cases the voyages were repeated several times. The results were striking: 89 per cent. of the patients improved, 5½ per cent. remained stationary, and 5½ per cent. became worse. "This," says Dr. C. T. Williams, "is the most favorable of all our climatic experiments." Dr. Austin Flint made trial of the sea voyage in 20 cases of consumption. Of these, 3 ended in complete recovery; in 2 others there was arrest of the disease; 10 others are recorded as "much improved," "benefited," or "notably benefited;" in 3 the result was doubtful or not stated, and only 2 became worse. Only 1 is recorded as suffering seriously from seasickness; and this proportion (5 per cent.) gives us a fair gauge of how far this difficulty is to be apprehended. Dr. Flint states: "We are certainly authorized to conclude that in a large majority of cases this measure—viz., a sea voyage—has a favorable influence on phthisis." Dr. Hermann Weber made trial of the

sea voyage in 31 cases of consumption in the first or second stage. Of these, 21 were "benefited considerably," 6 remained stationary, and 5 became worse. Dr. Walshe states that "in not a few instances I have known the Australian trip followed by practical recovery, where excavations, active disintegration, and more or less copious hæmoptysis proved the local advancement of the disease." Dr. Douglas Powell gives it as his opinion that "the voyage is unquestionably a most successful means of climatic treatment in suitable cases." Dr. Wilson (*The Ocean as a Health Resort*) saw 38 cases of consumption in which the sea voyage was tried. Of these, 28 improved, 4 remained stationary, 3 became worse, and 1 died. The cases were *not* specially selected. The writer has made an extensive trial of the sea voyage, and his experience is that benefit is the rule in early cases, the exceptions being very few in number; while of advanced cases some hold their own and are fairly comfortable on shipboard, while others retrograde.

On the other hand, the sea voyage has been sharply assailed. The most serious attack came from a Frenchman, Jules Rochard, who collected a large body of evidence from the records of the French navy to prove that consumption was both commoner and more rapid in its course among sailors than on shore. His conclusions are rendered valueless by the facts that the vessels, on whose records he relies, were stationed at unhealthy places, mainly in the torrid zone; that the hygiene of the French navy was formerly very defective; and that the privations, hard work, and nightly exposure of sailors, which predispose them to consumption, do not apply to a passenger in a well-founded ship of to-day. Dr. Burney Yeo has lately given his opinion that, if all cases of doubtful or mistaken diagnosis be excluded, the instances of benefit accruing to the consumptive from a sea voyage would be very few in number. It will require, however, a large body of definite and unfavorable statistics to overcome the weight of the favorable evidence adduced above, and probably those whose personal and practical knowledge of the sea is greatest will hold most strongly that no such evidence will ever be forthcoming.

Assuming, then, as proved that the sea voyage is a measure of great utility in consumption, it remains to consider for what cases it is suitable, and whether any special symptoms are available to guide our choice. After reviewing a considerable personal experience, and reading most of what has been written on the subject, the present writer is impressed with the great difficulty of defining rigidly the cases suitable for a sea voyage. That early and uncomplicated cases of consumption do incomparably better at sea than those more advanced is unquestionable; but this rule applies equally to other forms of climatic treatment. That hemorrhagic cases do badly at sea seems to be accepted as an axiom by many authorities, but on what evidence the present writer is at a loss to



conceive. Among a large number of cases he has only known two in which serious hemorrhage took place at sea, and in neither were the after-effects serious. It used to be said that hemorrhage was a bar to the high altitudes; it is still said to be a bar to the sea voyage, and one statement is just as fallacious as the other. The fact seems to be that no symptom in consumption is more capricious or of less prognostic value than that of hemorrhage, upon which so much attention is often so unprofitably concentrated. Nor, again, can the amount of fever present afford us a positive rule for or against the sea voyage. No doubt cases with much pyrexia are very unfavorable, and should not be lightly committed to the uncertainties of a distant journey and long separation from home; but to adopt Dr. Faber's rule that "no case of consumption should be sent to the Antipodes unless the evening temperature is normal," would be to limit unduly the area of usefulness of the sea voyage. It would be difficult to sum up better the cases suitable for the sea voyage than is done in the following sentence in Dr. Douglas Powell's work on *Diseases of the Lungs*:

"Cases of threatened phthisis, especially of the acquired kind, in those with overworked nervous systems; quiescent disease, especially of the catarrhal type, with defective sanguinification; and cases of lymphatic and scrofulous type do well on a sea voyage."

This sentence is entirely borne out by the present writer's experience; but he is unable to endorse the sentence that follows—viz.:

"Hemorrhagic cases, those of more purely tubercular type, and those complicated with dyspepsia or diarrhœa, on the other hand, are not adapted for sea voyages."

On the question of hemorrhage an opinion has already been expressed. That dyspepsia or diarrhœa is a contra-indication against the sea voyage cannot be accepted absolutely. There are few better tonics to the digestive system than the fresh breeze of the sea, and diarrhœa, apart from flagrant errors in diet, is exceptional on shipboard, a tendency to constipation being the rule. It may, however, be admitted that where the digestive system is much broken down, and where a rigid dietary is indispensable, the conditions of sea life would be unfavorable. The present writer is also inclined to suspect that patients with much hepatic derangement do badly at sea. Cases far advanced in phthisis are wholly unsuitable for the sea voyage.

To recapitulate, the sea voyage may be recommended with considerable confidence in the following cases of consumption:

- (1) Incipient cases, especially in young people and in the male sex.
- (2) Cases complicated with nervous breakdown.
- (3) Cases in which prolonged sedentary employment in bad air seems to have been the exciting cause of the disease.

- (4) Cases with a moderate amount of anæmia.
- (5) "Lymphatic" and "scrofulous" cases.
- (6) Cases that have arisen from delayed convalescence after pneumonia, pleurisy, or typhoid fever.

A question arises whether cases of laryngeal phthisis should be sent to sea, and on the whole the answer must be in the negative. In such cases the prognosis is so bad that a distant journey is under any circumstances questionable. Again, while such patients would in all probability benefit by the warm, moist air of the tropical and sub-tropical seas, they would be injured by the cold weather which is encountered south of the Cape of Good Hope. On the whole, laryngeal cases had better be sent to such warm, moist resorts as Madeira, or Nassau in the Bahamas. The prospect for such cases is, at best, far from hopeful.

The sea voyage has lately been the object of severe attack from two quarters and on two different grounds. One was from Dr. H. Coupland Taylor, who objects to the sea voyage that the rough and cold weather usually encountered between the Cape of Good Hope and Australia, and the discomforts consequent thereon, are apt entirely to undo the benefits which the patient may probably have derived from the earlier part of the voyage. That this may happen cannot be denied; but such a course of events is exceptional, and is mainly confined to ships that from necessity or choice go far south and meet with unusually bad weather. General experience is far more in accord with Dr. Wilson's statement that it is precisely at this stage of the voyage that all its good effects become most apparent.

A graver attack upon the sea voyage was launched some time ago in the pages of the *Australasian Medical Gazette* (Sydney) by G. R. MacMullen, LL.D., in an article entitled "Consumptive Travellers." Accepting the conclusions of Koch, the writer points out the close association which must exist in the small cabins at sea between the healthy and the consumptive, and the danger of contracting the disease thus incurred by the former. He recommends that

"All intending passengers should, on booking, produce to the shipping agents a medical certificate stating that the intending passenger is in good health, or, if not, the nature of his or her ailment. Secondly, the medical officer in charge of the ship should have power to remove a passenger into the ship's hospital, which, in view of such contingencies, should be properly fitted up for the reception of patients."

No objection can be raised to such reasonable suggestions; but it cannot be admitted that the danger of acquiring consumption is greater at sea than it is in thousands of homes ashore, where the danger is still but lightly regarded. Except in very bad weather the ventilation in good ships is fairly efficient, the vessel's motion creating numerous draughts; nor can there be on shipboard such an accumulation of dried sputum as

prevails in many households, since the washing out and repainting of the cabins are frequently performed. That consumption is communicative can hardly be any longer disputed, but the cases of proved communication are still scanty and almost confined to such instances of constant association as that between husband and wife. On the whole, while Dr. MacMullen's suggestions are worthy of adoption on general principles of hygiene, it cannot be said that the predominance of the bacillary and contagionist view of consumption seriously affects the utility or the area of usefulness of the sea voyage in pulmonary disease.

Those who wish to pursue the subject of the therapeutic uses of the sea voyage more fully than the pages of a journal admit, may consult the following

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The present writer's Climatic Treatment of Consumption, art. The Ocean Voyage.

The Systematic Manuals of Walsh, Douglas Powell, Jaccoud, Hilton Fagge, etc.

#### TENOTOMY FOR TALIPES.

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EVERY intelligent reader is familiar with the introduction, perfection, and enthusiastic reception of tenotomy by the profession, of the excess to which it was carried a half century ago, of the reaction, and of its present important position as an accepted surgical procedure; but when and in just what cases to employ it remains an uncertain factor in the minds of many surgeons.

After a careful study of a number of cases treated by stretching and tenotomy the writer has come to the conclusion that there is no arbitrary rule to be observed; that neither should all cases be treated by stretching nor all by tenotomy, but that there are cases in which one mode of treatment will accomplish more than the other, and others in which a combination will be most efficient in overcoming the deformity.

The arguments which have been most effectively used against tenotomy and in favor of stretching are that a cut tendon is (1) not as free and (2) not as strong as one that has been stretched. The first argument

applies only to those cases in which the after-treatment has not been effectively carried out, in which the tendon, cut at some distance perhaps from its insertion, has not become free; in other words, an argument applied against a treatment which has not been completed, as we shall see in speaking of the treatment of cases subsequent to tenotomy.

Adams<sup>1</sup> in his dissected cases showed that the tendon and sheath at the point of section had almost entirely returned to its normal condition, and could scarcely be detected on the closest scrutiny; and Sir James Paget<sup>2</sup> says in referring to the specimens of tendo Achillis, posterior and anterior tibial tendons deposited by Tamplin in the Museum of the Royal College of Surgeons, which had been divided four months before death, that "no trace of division of any of the tendons could be detected even with microscopic aid."

The second argument, that the tendon is weaker, applies only to those cases treated on the old plan of late restoration of the deformity, and does not apply to cases treated by the modern methods of immediate over-correction and fixation, for, as clearly demonstrated by the experiments of Sir James Paget,<sup>3</sup> the new tendon is quite as strong if not stronger than the old.

It may be interesting here to review the exact pathological process which occurs when a tendon is divided. Von Ammon,<sup>4</sup> Adams,<sup>5</sup> Hunter,<sup>6</sup> Guerin,<sup>7</sup> Pirogoff,<sup>8</sup> Broadhurst,<sup>9</sup> Paget, and others have all carefully studied the steps of this process, and the following is a *résumé* of their efforts.

Immediately following a well-performed subcutaneous operation a very little blood is effused into the space from which the upper part of the tendon has retracted. If much blood be effused it retards or defeats the formation of the proper exudate, this latter being not an organization of the blood-clot but a specially formed reparative substance. The first result of this division is the effusion of a fluid or semi-fluid inflammatory lymph exudate. The adjacent bloodvessels enlarge and the tissues about the wound become infiltrated, yellow and succulent. This exudate takes no part in the reparative process, and usually ceases in twenty-four hours. Somewhat later, about forty-eight hours in rabbits, the proper reparative material makes its appearance (the inflammatory exudate ceases or degenerates) and fills the entire space between the divided

<sup>1</sup> Club-foot, etc., 1873, p. 36.

<sup>2</sup> Lectures on Surgical Pathology, 1863, p. 201.

<sup>3</sup> Loc. cit., p. 199.

<sup>4</sup> De Physiol. Tenot., etc., Dresden, 1837.

<sup>5</sup> Loc. cit., 1873, p. 16.

<sup>6</sup> The Works of Hunter, Lond., 1837, p. 34.

<sup>7</sup> Essais sur la Méthode sous-cutanée, Paris, 1841.

<sup>8</sup> Ueber die Durchschneidung der Achillessehne, etc., 1840.

<sup>9</sup> On the Repair of Tendons, etc., Proc. Roy. Soc., No. 37, 1860.

extremities of the tendon and ensheaths them both for a short distance. This gradually becomes firmer, stronger, and grayer, and about the fifth day forms a distinct bond of union between the ends of the tendon. The differentiation gradually advances, at first rapidly, later more slowly, in time becoming identical, even microscopically, with the original tendon.

It is very interesting here to observe that this exudate is always sufficient to fill up the space between the severed ends, which may in some cases be very great, as in a case recently related to me by Prof. Willard, in which the ends were separated three inches and firm union occurred. The most interesting feature of the process, however, and the one bearing directly on the subject, is that pointed out by some recent investigations performed under the supervision of Victor Horsley, which demonstrated conclusively that if the ends of a tendon be separated a very short distance but a small amount of exudate fills the space; if they be separated a great distance the entire space is filled in, and if they be separated at first but a short distance, or the ends remain in contact and are subsequently separated, the resulting tendon will be a weakened spindle-shaped tendon, from a stretching out of the plastic exudate. It is, then, in cases which have been treated by this old method of not correcting the deformity before three or more days have elapsed, and in which a weakened tendon results, that the second argument can be effectually used against. I have myself seen a case in a young woman so treated in whom a sudden step upon the street caused such a tendon to break. It is with deep regret that we still find recommended this old method of after-extension in such otherwise excellent works as Schreiber's.<sup>1</sup>

In congenital cases, if seen early, as in a recent case in which I was consulted on the seventh day after birth, stretching or some form of retentive apparatus with manipulations should be employed. For this purpose "mole-skin" adhesive plaster properly cut, metal splints and bandages, or plaster-of-Paris dressings after the method of Hienkes,<sup>2</sup> may be employed. Modifications of Scarpa's shoe, especially that ingenious mechanical device of Dr. Shaffer, of New York, have in my hands yielded the best results. These I have employed faithfully and have always been enthusiastic in their favor. The one great objection is the time required to accomplish a cure. This loss of time to my mind would be no objection, if we obtain a stronger and freer tendon, but, as I have endeavored to point out, there is no difference between the tendons if tenotomy is properly performed. There is, however, one objection, and that is the great care and attention required on the part of the parent or attendant. I have a number of cases of severe congenital equino-varus completely cured by means of these shoes, but they have been two or

<sup>1</sup> Allgemeine und specielle orthop. Chir., Wien, 1888, p. 52.

<sup>2</sup> Beilag zum Centralbl. für Chir., No. 24, 1888.

three years under constant observation. On the other hand, I can show similar cases of equal severity in which the deformities have been corrected in the same number of months.

Tenotomy should not be performed until the child is at least three months old, and in all cases the surgeon must be thoroughly familiar with both forms of treatment and should decide which mode of treatment is best suited to the individual cases, and not empirically resort to one method exclusively. In performing tenotomy much of the success depends on the technique. If the pointed tenotomes be employed, as, for example, the slightly sickle shaped knife of Dieffenbach, no other instrument is needed; but if blunt, rounded tenotomes are used, another sharp-pointed bistoury must be employed for the puncture of the skin, and this is always a disadvantage, but one that cannot be overcome in certain localities. Anaesthesia is not absolutely essential, owing to the short time required for the operation, but is usually employed to overcome movements on the part of the patient which might interfere with the operation.

The skin having been previously rendered aseptic by cleansing with 1 : 1000 bichloride of mercury, the parts are so held as to render the shortened tendons prominent. The skin over the tendon is then punctured about its middle in such a manner that this incision and the one in the deeper parts shall not correspond when the parts are relaxed. The tenotome is carried flatwise beneath and close to the under surface of the tendon, the cutting edge is turned against it and the division accomplished by a slight rocking motion. The section is usually evidenced by an audible crackling and the extension of the contracted part. The assistant should at once relax the part. The tenotome is then turned flat and withdrawn, the operator compressing the wound to prevent any ingress of air. The puncture is then dressed with a small wet bichloride compress, and by a superficial dressing of gauze and cotton, and a prepared roller. The parts should then be placed in a slightly over-corrected position and retained in position by a metal retention-shoe which allows inspection, or a plaster dressing. The wound need not be inspected for ten days unless pain or elevation of temperature calls attention to the part.

Owing to the prominence of the contracted tendons there is not the same difficulty there would be in the normal state, and not the same danger of wounding adjacent structures, hence the complications following tenotomy are therefore few and usually slight. There may be:

1. Too great wound in the tissues or puncture of the opposite side from movements of the patient. With an antiseptic dressing such accidents are of no importance.

2. Profuse hemorrhage from wounding a large artery, as the anterior

or posterior tibial or plantar arch, is sometimes alarming, but calls for an antiseptic compress, a ligature being seldom necessary.

Such an accident can usually be avoided by inserting the tenotome in such a manner as to avoid the artery, and then cutting away from it. For this reason, in section of the tendo Achillis, if a sharp-pointed tenotome be employed the puncture should be made on the inner side, to avoid the risk of cutting the posterior tibial artery with its point.

3. A traumatic aneurism may be treated with a firm compress.

4. The section of a nerve, which although a disagreeable complication calls for no especial treatment, as the ends will probably unite in a short time.

5. Incomplete section of a tendon, which should be guarded against by observing that the tendon is completely severed before the tenotome is withdrawn. Otherwise the operator must forcibly rupture the undivided fibres or reinsert the knife.

6. Suppuration, which very rarely occurs, but should be met by free drainage and antiseptic dressings.

The after-treatment requires as much if not more attention to detail than the operation itself, and on this depends much of the success. Speaking of this after-treatment, Reeves<sup>1</sup> aptly remarks:

“I wish it thoroughly to be understood, that though correction by tenotomy and splinting are absolutely essential in the majority of cases, it is to the subsequent proper adjustment of splints, frictions, manipulations, massage, etc., of the foot and leg that very much of the success of these cases depends, and I am quite sure that if the tediousness of these cases, which is perhaps augmented by the fact that very few cases come annually under the care of surgeons at general hospitals, were less considered by them, special institutions would see less of *relapsed* cases.”

At the expiration of ten days the foot should be inspected, and if in good condition it should be placed in a well-constructed mechanical walking-shoe. At least once a day and preferably twice a day the foot and leg should be rubbed with linimentum saponis, or bathing whiskey, and manipulated, particularly over the muscles and tendons which were formerly contracted. This is very important and tends to free and strengthen the tendons. The skin over bony joints subjected to pressure should be hardened by the application of a solution of alum in alcohol. At night for some months the foot should be placed in a retention night-shoe, by which any tendency to relapse may be corrected.

In conclusion I may summarize as follows:

1. Stretching should always be first employed in cases which are seen early.

2. Mild cases should always be treated by stretching.

<sup>1</sup> Bodily Deformities, etc., Phila., 1885, p. 165.

3. Patients who object to the knife can be effectually cured by stretching, but it requires a longer time.
  4. A tenotomized tendon is as strong as one that has been stretched.
  5. In severe cases it is better to save time by tenotomy.
  6. After-treatment to prevent relapse is quite as important as the operation itself.
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### COMPOUND COMMINUTED FRACTURE OF THE PATELLA TREATED BY WIRING.

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THE unexpected termination of the following otherwise successful operation attests the disappointment which too frequently terminates the surgeon's confident expectation, through some intercurrent disease to all appearance unconnected with his operative procedure.

The importance attached to every case of compound comminuted fracture of the patella, associated with hæmarthroidal effusion and extravasation to an inordinate extent, and to the method of treatment by drilling and suturing the fragments, makes it imperative to publish the ultimate result, whatever this may be, of every operation of the kind.

There was a time when the fatality of such a complicated fracture of this bone led to the amputation of the limb without hesitation, and in military surgery our recent experience taught us, both in field and hospital service, that under any mode of treatment then in practice, however inconspicuous the wound appeared to be in this particular region from gunshot injuries, death sooner or later was certain to result, unless resort was had at once to amputation or resection. But now, under the observance of antiseptic technique, in the opinion of many we may confidently and aggressively invade a territory forbidden to our predecessors.

We here restrict our remarks to such injuries as are likely to result from direct violence, in which the patella, as the rule, is almost invariably fractured into pieces held together by its fibro-periosteal investment; the joint filled with grumous blood and serum; the capsule lacerated and tumefaction great.

Such a condition of the knee is very different from fracture of the patella from muscular contraction, or from an old ununited fracture with serous effusion. In these last-mentioned conditions, we understand perfectly and are ready to endorse the authoritative utterances of an earnest protest against the very serious operation of arthrotomy, with the accompanying drilling and metallic suturing of the fractured bone, by



those who advocate aspirating the joint and using Otis's Malgaigne's hooks of easy application, or other simpler methods. But when an articulation of the anatomical complicateness and size of the knee has already been destructively assailed, we must lose sight of all other circumstances but the life of the patient, boldly encroach upon the injured cavity, and by protracted, by even tedious antiseptic ablutions complete the toilet of its large and sensitive serous surface, taking no heed of the possible ankylosis, necrotic changes in the patella, or of simply fibrous or ligamentous union that may be all that is in store for the future; for perhaps a brighter prospect awaits us in a yet more useful and mobile joint, if we recall the successes of many who have obtained speedy healing by first intention with bony union of the fragments.

In the presence of such an accident as is here recorded, with a joint in the condition in which I found this patient's, there was reason for congratulation that conservative surgery offered provident methods of shielding an imperilled articulation and of wiring the broken bone, and that this promise of relief had sometimes been realized.

The inherent difficulty of the operation is in overcoming the antagonistic force of the quadriceps femoris, and in securing perfect apposition of the bony surfaces without the interposition of shreds of the fibrous tissue surrounding parts of the patella; but from the nature of this periosteal envelope, should a small portion obstinately intercalate itself between the contiguous fragments, it is by no means certain that these circumstances would impede osseous union. The entire displacement of any loose detachment of bone would require, of course, that such be removed.

The successful maintenance of the required adjustment of the patellar fragments so as to establish perfect apposition without tilting of the pieces can only be accomplished by metallic wiring of the bones, and this operation must be cautiously performed, disturbing as little as possible the aponeurotic fibres whose integrity may prove essential to safe and firm union. The proper drilling and wiring of the bones are the important parts of the operation, and these are best accomplished, perhaps, by Tiemann's drill-stock and drills, and should be conducted through the cancellated part of the fragments so as to be entirely extra-articular. A strong patellar wire is required to retain the bones firmly together, the ends of which, well twisted and cut short, should be impacted up to fixity of tenure within the fibrous covering of the patella, in which they readily become ensheathed and encapsulated, and can do no harm, being permanently retained.

In what possible condition of greater safety can we place a joint in this critically dangerous, if not absolutely hopeless state, than when we shall have pared the edges of its lacerated and contused tissues; thor-

oughly cleansed antiseptically the recesses of its hidden structures; approximated, blended together and closed the solid and softer portions of its fatal wound, having, so to speak, literally reconstructed anatomically its constituent parts? Add to this the promised assurances of an aseptic condition of the parts incompatible with the formation of pus during the processes of repair, and we shall have divested the operation in this region of the body of any greater danger than that which might attend the performance of the simplest surgical procedure.

As has already been intimated, the progress of this case was neither interrupted nor suspended in its advancement toward a perfect cure, but was grafted unfortunately upon some vice of the constitution, connected, as his physician explained, with a chronic disease of the liver from which he had long suffered and which culminated again in its latent influences upon him at this juncture; yet notwithstanding this unfortunate occurrence the wound progressed favorably and had almost entirely healed in the short period of a week without the slightest trace of suppuration.

It was on the seventh of September, at a late hour in the afternoon, that Mr. B. H. received a violent injury of the right knee from the kick of a horse. His physician detected a fracture of the patella, complicated with a lacerated wound of the joint, through which issued synovial fluid mixed with blood. I was not called into consultation until the next day, when I found the knee very much swollen; a wide diastasis of the fragments of a broken patella, and gentle pressure about the parts caused a flow of grumous blood and glairy fluid from the open wound. The patient was about fifty-five years old, of a highly bilious and sanguine temperament, a generous liver, using, as I was told, liquor freely, and that he had suffered but recently from some derangement of the liver. His complexion was very sallow, there was no fever, he suffered but little pain about the knee when at rest, and seemed less concerned about himself than he did about a relative ill in an adjoining room, who died a few days later, which circumstance is here mentioned, as the depressive and inconsolable effect of this death produced a very sudden and deleterious influence upon the result of his own case.

Made acquainted with the nature of the injury, of its gravity, and of the operation proposed for its relief, he begged me to proceed without further delay.

The knee, entire joint and even adjoining parts were washed with soap and water, and again cleansed with carbolyzed water, after which the immediate operative region was shaved and wiped off with spirits of turpentine, and cleansed once more with a mercuric chloride solution of 1 : 500. The instruments and the hands of my assistants and my own were rendered aseptic; indeed disinfection was kept up during the continuance of the operation, sublimated compresses protecting all parts, while sublimated sutures alone were used.

The patient was now placed under the influence of a mixture of chloroform and ether, a crucial incision opened freely the joint, which disclosed at once a loose piece of patella nearly detached, which was removed;

shreds of prepatellar tissue entangled in the edges of the fractured bone were liberated and cleansed and only partly excised, as we believed these aponeurotic bands essential to firmer union. The fracture was transverse, and the lower fragment was broken into two pieces. The approximation of the fractures could be accomplished with little or no resistance by bringing the bones together, which being ascertained, we proceeded to drill, first the lower fragments and then the upper, which were traversed through the thickness of the pieces, carefully avoiding the articular facets so that the wiring should be entirely extra-articular. Complete hæmostasis was insured during the operation, particularly upon the opposing surfaces of the bones before closing and twisting the wires, which were then cut short and impacted firmly beneath the aponeurotic investment of the now reconstructed sesamoid bone. After a careful ablation of all parts the crucial wound was united by carbolized catgut, with the exception of a dependent portion of the transverse incision which was left open, through which the joint might be irrigated at each subsequent dressing, as no drainage-tube was used, intentionally. The surface was iodoformized, aseptic gauze and absorbent cotton enveloped the knee, while the entire limb was adjusted to a posterior splint protected by sterilized wadding and secured by bandages that had been prepared in a bichloride solution of 1 : 500.

For forty-eight hours after this ordeal he maintained a normal temperature and pulse, without pain, sleeping well without anodynes, taking a pill of two grains of quinine every three hours; the dressings were but little defaced; his appetite good, he had eaten a rice-bird, with soup, milk, etc. The third day his temperature rose to  $101^{\circ}$ , he had no pain, the bandage just over the knee presented a small stain of blood, his appetite not so good. We did not intend to disturb the parts until the fifth day, but concluded to do so at once. There was scarcely any blood upon the cotton; the wound, still covered with the remains of the iodoform, had evidently united in part by first intention; slight pressure forced but little bloody serum through the open portion of the wound, through which the joint was well irrigated with bichloride solution 1 : 2000, until the recurrent flow was as clear as the influx. The knee appeared as natural as its congener, there was no hæmarthrotic complication whatever, the pills of quinine with acetanilid combined, in the proportion of four grains to each pill, were now administered until he had taken about twenty-five grains of each.

The fourth day the pulse was 90, temperature  $101.5^{\circ}$ ; he was restless, no headache, no vomiting, bowels had to be moved with hydrarg. sub. mur. gr. j, resin podophyl. gr.  $\frac{1}{4}$ , sodium bicarbonate grs. vj, which pill acted well; he took food with but little appetite; the bandage was not stained. On this day, unfortunately, his sister died, and the funeral occurring the next day agitated him extraordinarily, there was undisguised emotional and physical excitement, which I cannot but think hastened an event about to occur from trouble of some kind about a diseased and indurated liver.

At first there seemed to be no diathetical condition that could have attracted attention in one so apparently healthy, though I became convinced of it afterward from his physician's history of the case.

The morning of the fifth day we were told he had not slept during the night; his pulse was not accelerated, but the temperature was  $102^{\circ}$ ;

the pills were continued; he was jaundiced, had lost his appetite, complained of pain over the liver. That night the pulse fell to 88, and temperature 100°, tongue dry, but he seemed comatose; he could be aroused, and he spoke, but he appeared inconsolably depressed. We dressed the wound, and were surprised at its being virtually healed; there was no discharge from the granulating orifice, and therefore no further irrigation was deemed requisite. My friend, Dr. Wasden, of the United States Marine Service, tested the perfectly aseptic condition of the parts, and could not perceive the slightest odor on the closest approximation to the wound. The pills were discontinued. The jaundiced condition was still more marked. On the morning of the sixth day the temperature rose to 102°, pulse 90; he was more drowsy, tongue dry, refused food; and he died on the morning of the seventh day.

The rehearsal of these details accentuates two facts which deserve special recognition; the first is, that the prophylactic methods of aseptic surgery hastened the reparative process in this wound without the production of one drop of pus, and without the ordinary reactionary phenomena attendant upon so severe an operation—whether we ascribe this result to the exclusion of pathogenic organisms on the one hand, or to the observance, simply, of thorough cleanliness on the other; and secondly, that the fatal termination of this case could scarcely have depended upon septicæmia, as no putrefactive detritus nor ferment of any kind was permitted to reach the blood, no chills, no sweats, vomitings, nor steadily increasing fever were noted. In the spacious apartments of wealth and comfort in which our patient resided there was no miasma to introduce the desiccated germs, which, floating through the atmosphere of an eleemosynary institution, might readily have accounted for some spontaneous development of blood poison.

Without discussing the question whether traumatic fever can possibly originate independently of the imbibition or of the absorption of organic detritus from the wound, as a mild form of septicæmia, or whether it be the result of the liberation and reabsorption of a *free fibrin ferment*, occurring as it must then do spontaneously and coetaneously with the traumatism itself, we can safely conclude that if no steadily increasing reactionary fever occur for three or more days after serious injury to the soft parts, we are not probably in the presence of traumatic fever *per se*, since the highest authorities affirm from repeated observations that this fever frequently commences within the first twenty-four hours, or beginning of the second day, and in no single instance does it supervene after the fifth day. If, then, we exclude those ultra-microscopic particles as the supposed *materies peccans* of true septicæmia, we may yet more confidently affirm that the absorption of ptomaines likely to induce septic intoxication by producing what has been termed sapræmia, was effectually interdicted also by the cautious methods adopted and enforced in this case.

We should have mentioned that there was no disturbance of the bowels, which certainly showed that there was nothing that sought elimination by the intestinal canal.

We regret that an autopsy was not accorded us, as it doubtless would have disclosed the true nature of this hepatic disease.

## RECURRENT HERPES ZOSTER.

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Our knowledge of recurrent zoster is of comparatively recent date, and, as yet, the number of cases in which two or more attacks have been reported is quite small. O. Wyss,<sup>1</sup> in 1871, communicated the particulars of a case in which he believed himself justified in assuming that the attack then under observation was the second one, on account of the presence of cicatrices, and the statement of the patient that he had had an exactly similar eruption thirty years before. It was, however, so late as 1874 that the first case of recurrent zoster with a complete history was published by Kaposi.

Because of its rarity and other features of an unusual character, the following case is of considerable interest, and has been thought worth reporting:

M. B., æt. forty-five, a railway-car inspector, evidently in poor health, first came under observation in November, 1884, suffering from severe neuralgic pains situated in the upper and inner part of the right thigh. These pains had already lasted some hours, and continued with almost unabated severity thirty-six to forty-eight hours after my first visit, at the end of which time an eruption consisting of several small groups of pin-head- to split-pea-sized vesicles filled with clear serum appeared upon the inner surface of the upper part of the right thigh. The pains now began to diminish in severity, and finally ceased entirely after another day or two. The vesicles, having been ruptured by the patient, who imagined he obtained relief by letting out their contents, rapidly dried into thin crusts which soon fell off, and in a short time all trace of the eruption had vanished.

Three weeks after the attack just described the patient was again seized with severe pain; this time, however, over the sacrum and down the back of the thigh, along the course of the great sciatic nerve. As before, after a duration of a day or two, the pain was followed by an herpetic eruption, in this instance over the sacrum, which ran the same course as the preceding one.

<sup>1</sup> Archiv. f. Heilkunde, 1871.

These attacks continued to occur at intervals of three or four weeks for a year or more, the pain and eruption being sometimes situated over the sacrum—the most frequent site—sometimes over the inner surface of the thighs, and once, at least, on the right side of the scrotum. While in the great majority of attacks the right thigh was the one affected, yet the left one was occasionally the seat of the neuralgia and eruption; and upon several occasions these were bilateral, both thighs having groups of vesicles upon them. The eruption, when seated upon the sacrum, in those attacks which came directly under my observation, and in all, according to the patient's statement, always occurred upon both sides of the middle line. Under the internal administration of iron, arsenic, and cod-liver oil the intervals between the attacks grew longer; the neuralgia less severe, until an entire year elapsed without a recurrence. Treatment was then pursued in an irregular manner, and, finally, suspended entirely.

Within a few months the disease returned with all its former severity, and, at the time of writing, the patient is just recovering from an attack, the remains of a group of vesicles being yet visible over the sacrum.

While, as a rule, the eruption disappeared without leaving any trace of its existence, yet occasionally scarring resulted; and a recent examination of the affected parts discloses a considerable number of small superficial cicatrices, most abundant over the sacrum.

It is worthy of remark that the severe neuralgic pains are always preceded for a day or two by intense burning sensations, occurring in small circumscribed areas situated most commonly over the anterior surface of the thigh about its middle, but also occasionally on other parts of the limb.

From a careful inquiry into the history of the malady, it was learned that some months before the first seizure—the exact period could not be definitely fixed—the patient had sustained a compound fracture of the right femur, and that the pains during the first year or two after their beginning, although differing in no respect as to severity and location from the subsequent ones, were unaccompanied by any change in the skin. Since its first appearance, however, the herpes has never failed to accompany the neuralgia.

A diligent search of the literature of the subject has enabled me to collect eleven cases of zoster in which from two to seventeen attacks occurred. An analysis of these eleven cases reveals some interesting features as to the etiology, the character of the eruptive lesions, and the course of the disease. In three instances the zoster occupied the face; in five, it occurred over some of the branches of the brachial plexus; in three, the lumbar plexus furnished the nerve supply to the part affected, while in my own case the sciatic and its branches were the seat of the neuralgia.

It is somewhat remarkable that in four out of twelve cases—this includes the one reported in this paper—the eruption was bilateral one or

more times. In two of these four cases the bilateral character of the eruption was present in each recurrence; in the remainder, it occurred only exceptionally.

In the three cases reported by Kaposi<sup>1</sup> under the title of "gangrenous recurrent zoster," the eruption departed markedly from the ordinary type of herpes, both as to the character of the individual lesions and their arrangement. At the seat of the eruption the skin appeared as if cauterized by sulphuric acid or caustic potash; small eschars formed, which, after falling off, were followed in time by keloid-like scars. The arrangement of the lesions was peculiar, too, in that they were grouped in a circinate manner, recalling herpes circinatus, and new rings of vesicles were formed at short intervals around the older groups. Nor did the entire eruption appear at once over the course of the nerve affected, but, contrary to the usual course, first appeared over its peripheral branches and extended toward the centre by successive out-breaks. In the first of these three cases there were nine attacks, separated by intervals varying from three weeks to thirteen months.

Kopp<sup>2</sup> has described a case of zoster of the left side of the face, in which no less than seventeen attacks had occurred in a period of five years, and which produced so marked scarring as to recall that resulting from an attack of variola. In a case reported by Tilbury Fox,<sup>3</sup> the eruption, according to the patient's statement, occurred every summer, and was invariably accompanied by a herpes upon the penis. Quite recently von Düring<sup>4</sup> has given the details of a case of recurrent zoster femoralis, in which erysipelas, and four attacks of what the author calls pseudo-erysipelas—a diffuse reddening of the skin unaccompanied by constitutional disturbance—preceded the herpetic eruption. The zoster occurred at intervals of about six weeks, and occasionally a preputial herpes seemed to take the place of the femoral one, since the interval between the recurrences upon the thigh was much longer when there had been an eruption upon the foreskin. In connection with the last two cases mentioned, reference should be made to Eliot's<sup>5</sup> case of bilateral recurrent zoster situated upon the side of the neck, in which, likewise, herpes occurred upon the penis.

In a large proportion of these eleven cases—36.3 per cent.—an injury of some kind had preceded the appearance of the disease, and was regarded as its probable exciting cause, not always, however, as it seems to me, with sufficient reason. In a case of ophthalmic zoster reported by

<sup>1</sup> Wien. med. Wochenschr., 1874-75-77-79.

<sup>2</sup> Trophoneuros. der Haut, p. 101.

<sup>3</sup> British Medical Journal, 1870.

<sup>4</sup> Monatsheft f. prak. Dermatol., 1888.

<sup>5</sup> Journal Cutaneous and Genito-urinary Diseases, September, 1888.

Nieden,<sup>1</sup> in which there had been five attacks in six years, there had been an injury affecting the transverse processes of several of the cervical vertebrae, which was supposed to have brought about secondarily a diseased condition of the superior ganglion of the cervical sympathetic. In Kopp's case, quoted above, the patient had received a severe blow upon the head a short time previously; but an examination failed to discover any evidence of injury inflicted by the blow. In a case of femoral zoster reported by Fabre,<sup>2</sup> the eruption appeared for the first time upon a part of the thigh recently bruised by a fall, but the second attack occurred beneath the scapula. As this patient shortly afterward suffered from furunculosis, and was found to have glycosuria, it is much more probable that the diabetes was the causative factor, the appearance of the herpes upon the injured thigh being nothing more than a coincidence. An exceedingly interesting case from an etiological point of view has been briefly described by Jewel,<sup>3</sup> in which the appearance of a femoral zoster in an unusually stout woman was invariably preceded by violent pains in the uterus. With the cure of the uterine disease the herpetic affection vanished completely. In von Düring's case, referred to above, a severe septic phlegmon of the upper part of the thigh, which required several incisions, was regarded as the cause of the zoster.

From the foregoing brief analysis it is quite evident that recurrent herpes zoster is in many respects, apart from the feature of recurrence, markedly different from the ordinary type, such as is seen, for example, on the side of the thorax, over the course of the intercostal nerves. The repeated attacks, together with the unusually large proportion of cases in which the eruption is bilateral, point to lesions centrally situated, which have produced more or less profound disturbance of trophic centres.

In concluding, I wish to suggest the probability that many cases of labial and preputial herpes, in which recurrences are frequent, may be, in fact, cases of recurrent zoster limited to very small nerve branches.<sup>4</sup>

<sup>1</sup> Mendel's *Centralbl.*, 1882, p. 379.

<sup>2</sup> *Gazette Méd. de Paris*, October 20, 1883.

<sup>3</sup> *Trans. Amer. Neurolog. Assoc.*, 1875.

<sup>4</sup> Vide case of recurrent labial herpes, *Annales de Dermatol. et de Syphiligraphie*, Doyon et Diday, 1884.



## REVIEWS.

THE NATIONAL MEDICAL DICTIONARY: INCLUDING ENGLISH, FRENCH, GERMAN, ITALIAN, AND LATIN TECHNICAL TERMS USED IN MEDICINE AND THE COLLATERAL SCIENCES, AND A SERIES OF TABLES OF USEFUL DATA. By JOHN S. BILLINGS, A.M., M.D., LL.D. Edin. and Harv., D.C.L. Oxon., M.N.A.S., etc.; with the collaboration of W. O. ATWATER, M.D., FRANK BAKER, M.D., S. M. BURNETT, M.D., W. T. COUNCILMAN, M.D., JAMES M. FLINT, M.D., J. H. KIDDER, M.D., WILLIAM LEE, M.D., R. LORINI, M.D., WASHINGTON MATTHEWS, M.D., C. S. MINOT, M.D., and H. C. YARROW, M.D. 2 vols., large 8vo., pp. 731, 799. Philadelphia: Lea Brothers & Co., 1890.

WITHOUT disparagement of the other valuable medical dictionaries already in use, this one may be fairly said to be the most desirable for possession and reference by both students and practitioners. Dr. Billings would have been the choice of the profession for such a task, could it have been submitted to suffrage; not only because of his ability and medical scholarship, recognized with the highest honors at home and abroad, but also because the immense experience of the superintendence of the *Index Medicus* has afforded a special preparation for this work. The judiciousness of his selection of collaborators is shown by the general excellence of the definitions given throughout the two volumes.

The extensive tables at the beginning of Vol. I., while not necessary to a medical dictionary, add much to its usefulness, as they contain matter a considerable part of which can hardly be found elsewhere, except as scattered through a number of different publications. They include a Table of Doses, of Antidotes for Poisons, of Inch and Metre Numbers for Spectacle Glasses, of Thermometric Scales, of Average Dimensions of the Fœtus at Different Ages, Average Dimensions and Weights of Parts and Organs of the Human Body, Nutritive Ingredients, etc., of Foods, Dietaries, and Expectation of Life at Different Ages. Not all of these very elaborate tables are merely compilations. Especially important in their original data are those of Professor Atwater on foods, dietaries, etc., as they give the results of many American as well as European observations and experiments.

Dr. Billings, in his Preface, tells us that "errors of commission and of omission in this work are to be charged to the editor-in-chief," and he will be greatly obliged to those who will point out to him the various mistakes they discover. Accepting this generous challenge, although it is not expected that any one—even a reviewer—will *read through* a dictionary, we have looked over it with considerable care. Having expressed our approval and admiration of the work as a whole, it may

be permissible to be almost hypercritical in regard to some particulars, especially as little more than verbal criticism is practicable of a book whose subject is the meaning and use of words.

Cardinal virtues in a dictionary are clearness and sufficient fulness, without redundancy. Generally the definitions in this work are clear, but sometimes lucidity is sacrificed to brevity; there is occasionally an extreme parsimony of space. Of this the acme is reached in the following definition: "Cor (F.) corn." A dictionary being meant especially for the least informed, we can imagine a student having to look in his French dictionary to make sure that *cor* is not the equivalent of *blé* or *mais*, but is medically used for a corn on the foot. Again, *Sims's position* is simply defined "latero-abdominal position." This will not much help a learner. "Knee-elbow position," given in its own place, might have been omitted, as it explains itself. It is said, correctly enough, to be "genu-pectoral position." A few other unnecessary definitions appear, as of Voice, Gumboil (gingival abscess), Hernia-knife, Nostrils, Cough. Omission of these would have left some lines of space available to make more entirely clear the account of some less familiar terms. There has been, on the principle of extreme brevity, too great an avoidance of repeated definitions. Thus calomel is simply defined "mercurous chloride." An unlearned reader must then go to the other volume of the dictionary for these terms. Tachometer, in Vol. II., has mentioned as its equivalent *Hæmadromometer*; for this reference must be made to Vol. I. Apozème is said to be "a magistral preparation," etc. In this and a few other instances there is apparent a presumption of ready knowledge which is not apt to be possessed by those who have the most need of a dictionary.

With nearly 85,000 words to be attended to, some may, of course, be easily overlooked. We have missed in this work only ten: Bivalent, dextrose, hydrometer, lanthanum, niobium, picronitric acid, quadrivalent, rubidium, sensori-motor, thallium.

Proportion has been, almost throughout, well preserved in this dictionary; it does not, as some others have done, show a constant ambition to grow into a cyclopædia. It is, it is true, with some surprise, that we find Bright's disease (to which Dunglison gives nearly half a page) having but seven lines; yellow fever the same; and cancer but six lines as an English word, with ten more for French names of its varieties; while under hog-cholera there is half a column, and under swine-plague seventeen lines. For bacillus and micrococcus, to give the former more than four pages and the latter a page and a half, belongs to the present era of pathogenic biology. Some future edition may call for revision, if not abridgment, of these pages.

But the nearest approach to cyclopædic *hypertrophy* in the present work is in the departments of psychophysiology and physiological optics. Thus we have *articles* on Corresponding Points, Depth-feeling, Fundamental-formel, Height-feeling, Horopter, Lines of Regard, Lines of Demarcation, Lines of Direction, Prevalence of Contours, and Psychophysical Methods. Some of these would be accounted short articles in a cyclopædia, but they are all long—several of them clearly too long—for a dictionary, especially as those terms are very unlikely to be met with except in writings in which, being purely technical, they are immediately and fully explained.

Very few of Dr. Billings's definitions have authority against them.

One or two seem to us to be at least of doubtful validity. *Infection* is properly said to be understood to refer to things rather than to persons; implying the presence of a virus or of bacteria. But under *Infectious* we read that "A disease is said to be infectious when it can be communicated to another person." This shuts out the idea, which is very important, of *local* infection. Yellow fever and dengue are both defined, in the work before us, as infectious. In the sense of personal contagiousness, this is contradicted by a large preponderance of evidence.

Lichen is defined as characterized by umbilicated papules. The word umbilicated might certainly be left out with advantage.

Roseola is said, "when distinctly contagious, to be roetheln." Nosologists generally, we believe, will agree that roetheln is entirely a separate disease from anything properly to be called roseola.

Steno's duct is asserted to be an error for Stenson's duct. Against this we have at least the very respectable authority of *Lippincott's Biographical Dictionary*, which credits the discovery to Steno. It is quite possible, of course, for Dr. Billings or his collaborators to have ferreted out the truth of this matter, as such credits are often inaccurate or doubtful.

Talipes valgus is defined as "flat-foot." More commonly it is understood to be the opposite of talipes varus; the knees approaching each other, and the feet being turned outward. Flat-foot is, by some, called talipes equino-valgus.

Contra-stimulant we would define as not causing "depression of vital power," but only of vascular excitement—quite a different thing. Objection may be brought, also, to the definition, in this work, of the zymotic theory; that it is "the theory that specific diseases are caused by ferments or low organisms." Liebig's theory of pathogenic zymosis was distinctly not a "germ-theory." It was chemico-vital. He held that a virus acts on the fluids of the human body in a manner analogous, but not similar, to that of ferments upon other materials; no real fermentation taking place, but a change involving a multiplication of the virus in the system. Whether the character of the virus depended or not upon the presence of a minute living organism, was a question apart with Liebig and those who have held with him, from that of the truth or falsity of the zymotic theory.

With very little exception indeed, the pronunciation and orthography of medical terms in this Dictionary are beyond question. It will be well if, in the matter of pronunciation, it shall promote the correction of a number of common, at least colloquial, errors among physicians. It is true that usage, the best usage, constitutes the ultimate authority in spelling and pronunciation. But who is to determine what is the best usage? We believe that a dictionary, when prepared by competent hands, is rightly an important factor in *making*, or influencing, usage; sometimes in the direction of rational improvement. Thus we should have been glad if Dr. Billings had given for all the alkaloids and other proximate principles the termination *in*, without the final *e*, as he has done with caffenin, digitalin, fibrin, glycerin, paraffin, and others. Also, the English spelling, meter, now much in use, might have been recognized as correct; and the diphthong might have given way in such words as diarrhœa, dysmenorrhœa, etc., and in hæmorrhage, hæmorrhoids, etc. Webster, at least, allows diarrhea, and both Worcester and Webster give hemorrhage and hemorrhoids as alone right. Words in

general, not exclusively of medical, use, ought to follow the best authorities, sanctioning general usage. For this reason especially, we regret that the dictionary before us gives the pronunciation *kwe-noon* for quinine. Dunglison and Thomas both agree with prevailing (at least American) usage, in preferring the long sound (as in *mine*) of the second syllable of that word. It is to be wished that Dr. Billings, like Dr. Joseph Thomas in his excellent *Medical Dictionary*, had indicated the sound of *g* at the beginning of words. He might thus have aided in rectifying the now frequent mispronunciation of gynecology; which ought to have, in its first syllable, the sound of *gy* as in gymnastics; not, as we often hear it, like the sound of *gui* in guide.

Other notes of suggestion might be added, but there is not space for them here. We could render no higher compliment to such a work than to give it a minute, if it even seem a hypercritical, examination. It is well worthy of it; as it is also of a place near the elbow of every medical student, and on a low-down shelf in the office of every practitioner.

The typography of these volumes is only too elegant; they have almost the character of an *édition de luxe*. Some impecunious students would rather have had a single volume, with the clear, small type of Dunglison: the possible increase of cumbrousness thus caused being compensated for by a reduction in its price. But it is worth its cost as it is, and is sure to go through many future editions, as a standard, if not the standard, medical dictionary.

H. H.

DU SANG ET DE SES ALTÉRATIONS ANATOMIQUES. Par GEORGES HAYEM, Professeur à la Faculté de Médecine de Paris; Membre de l'Académie de Médecine; Médecin de l'Hôpital Saint-Antoine. Avec 126 figures dans le texte, noires et en couleur. 8vo., pp. xxvi, 1035. Paris: G. Masson, 1889.

THE BLOOD AND ITS ANATOMICAL ALTERATIONS. By GEORGE HAYEM, Professor in the Medical Faculty of Paris, etc.

If any proof were needed that hæmatology is a distinct specialty, it is furnished by this superb volume which is the crowning work of one who is everywhere recognized as an authority on the subject of which it treats. A work such as this can be nothing else than the fruit of many diligent years of research, a fact made patent by the list of the author's previous publications on the blood—ninety-two in number—which immediately precedes the first chapter.

It is manifestly impossible in reviewing this book to do more than touch upon certain salient points of general interest and fundamental importance. Before beginning this congenial task, however, we must point out that the title is defective, inasmuch as it does not indicate fully the scope of the book. The disappointment, if one may use such an expression, experienced in turning over the pages of this volume, is most agreeable, for, besides the blood and its anatomical alterations, it treats of chlorosis, chloro-anæmia, progressive pernicious anæmia, post-hemorrhagic anæmia—in short, of all the diseases which have their seat in the blood or find their fullest expression in that fluid.

The work is divided into six parts, of which the first treats of the

histological examination of the blood, the enumeration of its corpuscles, the estimation of its percentage of hæmoglobin, its spectroscopic examination, and the examination of its serum. These important technical matters are treated with great clearness and precision, which is, doubtless, in part, owing to the fact that the author confines his descriptions to the methods employed by himself. It would certainly not have been out of place for him to allude to the ingenious instrument of Fleischl for estimating the amount of hæmoglobin in the blood, and to that of Abbé and Zeiss for counting its corpuscles. These instruments are, doubtless, modifications of others which have preceded them, but outside of France they are rapidly coming into favor, and will probably soon entirely supersede their prototypes.

The second part is purely anatomical and comprises three chapters, of which the first is devoted to the anatomy of human blood, the second to that of vertebrate animals with nucleated red corpuscles, and the third to the quantity of the different elements of the blood of man and various animals. In the blood of man Hayem divides the corpuscles, with reference to their size, into three classes: a large, a medium sized, and a small, of which the diameters vary from  $8.5 \mu^1$  to  $6 \mu$ . In 100 corpuscles there are 75 of medium size, 12.5 large, and 12.5 small. In addition, there will always be found, on careful examination, a few dwarf and giant cells; the former being less than  $6 \mu$  in diameter, the latter more than  $9.5 \mu$ . The various physical properties of the red corpuscles, their structure, and their reaction toward various chemical reagents and coloring matters are thoroughly considered.

Hayem is distinguished among hæmatologists by the important physiological rôle which he assigns to certain formed elements of the blood variously known as hæmatoblasts, blood-plates, and blood-plaques. The existence of such bodies, and their participation in the formation of thrombi are admitted by all; but there are few who agree with Hayem in regarding them as the germs of the red corpuscles. His principal reasons for so doing are derived from a study of their structure, which shows them to be composed of two substances: an insoluble stroma of fibrinous character, and a viscous organic matter, distinguished by its tendency to exude from the stroma and adhere to neighboring red corpuscles, hæmatoblasts, or to the object- or cover-glass. He claims also to have observed in human blood, corpuscles intermediate between the hamatoblast and the fully developed red corpuscles. In the blood of cold-blooded animals there are certain ovoid or spindle-shaped, nucleated, colorless cells which Hayem regards as the analogues of the human hæmatoblasts and the germs of the nucleated red corpuscles. These views of so distinguished an authority are entitled to the greatest consideration and call for further study of this important subject. It must be confessed, however, that, up to the present time, the tendency of research has been rather to refute than to confirm them. Thus, for example, opinions differ as to the very existence of the so-called hæmatoblast in normally circulating blood. The latest communication on this subject is by Löwit,<sup>2</sup> of Innsbruck, who, after a fresh series of experiments, is more than ever convinced that the so-called hæmatoblasts are not normal elements of the blood, but products of decomposition of

<sup>1</sup>  $\mu$  signifies micromillimetre.

<sup>2</sup> Virchow's Archiv, September, 1889.

the white cells, or precipitations from the plasma, and he calls attention to the coincidence that at one time Hayem himself spoke of the *blutplättchen* (identical with his hæmatoblasts) as precipitations—*concrétions sanguines par précipitation*. The technique of Löwit's experiments is very delicate. He examines the blood in a mixture of castor oil and cod-liver oil of a certain temperature and specific gravity, and without a cover-glass, for the mere contact of the latter, or a fall of temperature is sufficient to cause the formation of the bodies in question. The spindle nucleated cells of cold-blooded animals, which Hayem regards as the analogues of the hæmatoblasts, are believed by Löwit<sup>1</sup> to be undeveloped leucocytes, for he claims to have seen them acquire a globular shape and distinct amœboid movements. From these remarks it is evident that the question whether the hæmatoblasts are physiological elements or pathological products can hardly be considered as settled.

The third section of the work is physiological, and treats of the modifications of the blood caused by age, constitution, individuality, race, digestion, diet, abstinence, inanition, menstruation, pregnancy, lactation; also of the changes which the blood undergoes during its circulation, and of the act of coagulation.

The chapters of greatest interest in this comprehensive section are those which deal with the blood of the newborn and with the act of coagulation. Hayem finds the number of red corpuscles per millimetre cube in the blood of the newborn to be equal to that of the most vigorous adults, and always notably superior to that of the mother. The average result of counts of the blood of seventeen infants was 5,368,000, the maximum being 6,262,000, the minimum 4,340,000. The number of corpuscles in the blood of the newborn seems to be influenced by the time of ligature of the umbilical cord. In six infants on whom the cord was tied immediately after birth, he found an average of 5,087,000, whereas in eight whose cord was not tied until the pulsations of the umbilical artery had ceased, he obtained an average of 5,576,000. During the days immediately following its birth, before the secretion of milk is established, the child loses weight, reaching its minimum in this respect on the third day. In this interval the number of corpuscles, both red and white, remains stationary until the body-weight reaches its minimum, when there is a sudden fall in the number of the white cells and a rise in that of the red corpuscles, which now usually attain their maximum. With the restoration of weight the number of leucocytes increases and that of the red corpuscles falls and remains permanently about 500,000 below the initial figure. The constitution of the blood of the young infant is remarkable for its instability, varying from day to day, independently of the body-weight. This striking peculiarity is believed by Hayem to depend upon the more or less active formation of new elements, in proof of which he states that the number of the corpuscles is invariably proportionate to their size, the rise in number always coinciding with an increased proportion of small corpuscles, and *vice versa*. According to Hayem, nucleated red corpuscles are never found in the blood of the newborn child, which differs notably in this respect from the young mammalia of the laboratory—dogs, rabbits, guinea-pigs. In the blood of the latter nucleated red corpuscles are present for several days after birth.

<sup>1</sup> Fortschritte der Medicin, May 15, 1888.

The reviewer's own observations on the blood of the newborn are not so numerous as those of Hayem, of which they are in some respects corroborative, in others not. Our maximum and minimum figures are very similar to his, although slightly higher. The former is 6,410,000; the latter 4,520,000.<sup>1</sup> Hayem does not mention the time after birth at which his examinations were made. Our highest count was made two hours and a half after the birth of the child. Our observations demonstrated that the number of the red corpuscles "may either increase or diminish during the first few days of life and that, in the newborn, as in the adult, there are great individual variations."<sup>2</sup> For the benefit of those who may undertake to examine the blood of the neonatus, we would state that a sufficient amount for the purpose cannot be obtained from any of the fingers, but that the great toe will furnish all that is needed.

The chapter on coagulation occupies one hundred and twenty-one pages, and discusses the subject in every possible bearing. The following *résumé* comprises the results of Hayem's researches as well as those of most of the principal students of this difficult physiological problem:

The liquids capable of forming fibrin may be divided into two distinct groups, of which the first, such as the blood plasma, the lymph and serous effusions, are spontaneously coagulable, and when raised to the temperature of 132.8° F. to 134.6° F., deposit a viscous precipitate, which is one variety of fibrinogen. Of this substance, the blood plasma contains the most, the serous effusions the least.

The second group comprises liquids not spontaneously coagulable, and which do not furnish a precipitate when heated up to 132.8°, but which do so on the addition of blood serum or of a substance of undefined composition known as fibrin ferment. Although these fluids do not precipitate by heat, they lose after being heated the property of coagulating on the addition of serum. The fibrinogen which they contain has, therefore, been modified in its nature by the application of heat. From these facts it is probable that coagulable liquids contain at least two kinds of fibrinogen, the one precipitable by a temperature of 132.8°; the other alterable by such a temperature, but not precipitable.

On account of its richness in formed elements, the blood occupies a place apart among coagulable liquids. Of these elements, the hæmatoblasts play the principal rôle in the act of coagulation, which is not complete until the viscous substance of these bodies has completely separated from their stroma.

A complete chemical theory of the act of coagulation cannot yet be formulated. All that can be affirmed is that fibrin appears to result from the transformation, probably by hydration, of various closely related albuminous matters which represent different varieties of the substance called fibrinogen. This substance gives rise to fibrin by its modification through the agency of organic matters proceeding from cellular decomposition.

Hayem attributes coagulation exclusively to the formation of fibrin (p. 256), which is, in the writer's opinion, a partial view of the subject. Our own ideas on the subject may be summed up in the following paragraph penned several years ago:

<sup>1</sup> See a Contribution to the Study of Icterus Neonatorum. Archives of Medicine, October, 1883.

<sup>2</sup> See article Blood, in Wood's Reference Hand-book of the Medical Sciences.

In the opinion of the writer, a blood-clot is the result of two distinct processes: coagulation proper and fibrin formation—the one chemical, the other morphological. Coagulation occurs in milk under the influence of a ferment (rennet), but there is no fibrin formation. The same process takes place in blood under the influence of a ferment derived from the white corpuscles, and, perhaps, also from the blood-plates (hæmatoblasts), while, at the same time, and *in addition*, there is formed a fibrinous reticulum which is a direct metamorphosis of the same elements.<sup>1</sup>

On turning over the pages of the fourth part of the work, the attention is attracted by an excellent drawing of the crescentic bodies first observed by Laveran in the blood of intermittent fever, and now regarded by many of the best hæmatologists as of parasitic origin. The section in which this plate appears is entitled "Pigmentary Degeneration of the Red Globules in Intermittent Fever," and the feeling excited by its perusal is one of regret that Hayem's opportunities for studying malarial blood have been so rare. He states, in fact, that he has observed the alterations described by Laveran in but one case, and then found nothing but the crescentic bodies, during an apyretic interval. With true scientific spirit, Hayem declines to express a positive opinion on a subject which he has not thoroughly investigated, but acknowledges that he is inclined to regard the changes described by Laveran and others as due to non-parasitic modifications of the red corpuscles. This has been the first impression of others to whom further study has brought the conviction that the peculiar and constant alterations in malarial blood can be due to nothing but a polymorphous hæmatozoön.

Omitting any detailed notice of the fifth part, which deals with such difficult and unsolved physiological problems as the development and renovation of the blood, we come to the sixth and last, which is exclusively concerned with its pathology. The practical interest of the work culminates in these final chapters, which treat of chlorosis, chloro-anæmia, progressive pernicious anæmia, leucocythæmia, post-hemorrhagic anæmia, toxæmia, symptomatic anæmia, etc.

The chapter on chlorosis should be studied by all who are interested in this most common disorder of the blood. Hayem is not among the number of those who hold that chlorosis is characterized by a normal, or nearly normal, number of red corpuscles more or less deficient in coloring matter, and, therefore, to be distinguished from anæmia, in which the diminution in the number of the corpuscles is the characteristic feature. On the contrary, he distinguishes three forms of chlorosis, a mild, a medium, and an intense, in accordance with the degree of anæmia present in each case. The fact that the percentage of coloring matter is lower than that of the number of red corpuscles, is mentioned by Hayem as one of the features of chlorotic blood; but this disproportion between number and color is by no means peculiar to chlorosis. For example, we recently examined a case of leucocythæmia and found the percentage of red corpuscles to be 59.6, while that of the color was 45. In numerous cases of scurvy we have also found the same disproportion. In one of the latter the percentage of corpuscles was 100+, and that of their hæmoglobin 65. In another the percentage of corpuscles was 55 and the color 30. In short, to argue, as some do, that chlorosis is specially distinguished by a low percentage of coloring matter,

<sup>1</sup> Archives of Medicine, vol. xii. No. 3, December, 1884.



both absolute and relative, is to display a limited knowledge of blood diseases. This criticism, it is needless to say, does not apply to Hayem, who makes no such statement. On the contrary, his views concerning the pathology of chlorosis are heartily endorsed, and especially the inference that may be legitimately drawn from them that chlorosis is nothing more than the anæmia of puberty.

With reference to the vascular hypoplasia (*aortis chlorotica*), first advanced by Virchow, as a cause of chlorosis, Hayem believes that it may be present in such cases as are distinguished by an obstinate tendency to relapse; but these are relatively rare.

The treatment of chlorosis receives due consideration. Hayem regards iron as indispensable in the treatment of chlorosis, and adapts the preparation to the case, believing that one to be most efficacious which is best tolerated by the stomach. It will be found, as a rule, among the proto-salts of the metal.

By the term chloro-anæmia Hayem designates chlorosis occurring in the course of another affection capable of producing anæmia. This may seem a refinement to those who have not been struck with the widely different effects of the same anæmia-producing cause. For example, in the course of a disease which either does not give rise to anæmia or does so in but slight degree, a patient may fall into a condition of profound anæmia altogether out of proportion to any apparent cause. In such cases it will often be found that there is a constitutional tendency to anæmia, a chlorotic diathesis. The principal diseases which, by their association with chlorosis, give rise to the various types of chloro-anæmia are dyspepsia, tuberculosis, uterine and puerperal diseases, neuroses, especially hysteria, and syphilis. In many cases the pathological combinations are so complex as to make a precise diagnosis almost impossible.

The chapter on pernicious anæmia is one of the best, but was written before the publication of Hunter's researches, which afford such strong evidence in favor of the view that this affection is essentially hæmolytic.

The important subject of leucocythæmia hardly receives the consideration it deserves, although the short space devoted to it contains much of interest. For example, Hayem states that nucleated red corpuscles are habitually present in the blood of leucocythæmia. He found them in four out of five cases, and in the case in which they were not found the blood was examined but once. With reference to the amœboid movements of the white cells of leucocythæmia, Gilbert, under Hayem's direction, found that those of normal size possessed normal contractility, but that certain giant cells, evidently hypertrophied, were destitute of amœboid movement.

These are some of the principal points of interest in the best book on the blood and its diseases that has yet been published. After reading it, one is much inclined to echo the sentiment with which its distinguished author begins it: "*L'avenir appartient à l'hématologie.*"

F. P. H.

THE USES OF ELECTROLYSIS IN SURGERY. By W. E. STEVENSON, M.D. Cantab., M.R.C.P., in charge of the Electrical Department at St. Bartholomew's Hospital, Physician to the Grosvenor Hospital for Women and Children, late House Surgeon to St. Bartholomew's Hospital and to the Hospital for Sick Children, Great Ormond St. 12mo., pp. xii., 186. London: J. & A. Churchill, 1890.

THERE is perhaps no one who has studied the subject of electricity in its application to medicine and surgery who is entitled to a more respectful hearing than the author of this book; and if common report were wanting as the source of such a statement, the very fair and dispassionate way in which he has treated his subject would be sufficient to call it forth. There is no dearth of books on medical electricity; there are few which can give information to the non-electrical expert as concisely and intelligibly as this. This would seem flattery if one were not familiar with this department of literature.

Success in the use of electricity does not blind the author to the fact that for certain conditions surgery can never be displaced. He gives due weight to the objections that the practice of medical electricity means investment in costly apparatus, and a knowledge of the laws and phenomena of this physical force which is not acquired without careful preparation, and he admits, as some enthusiasts do not, that not a few dangers attend the application of it. He rejects the sophism that the galvanocautery produces effects which differ materially from those produced by heat from any other source, and clearly defines the difference between cautery and electrolysis. We are also glad to see that he advocates, as a rule, the use of mild currents, and for short periods of time. Hence, on the score of safety and judicial expression, he will be found a wise counsellor.

In the application of electricity to gynecology he is somewhat less radical than Apostoli, and for American and English readers who have not had the privilege of seeing Apostoli's work his arguments will be more satisfactory, especially in the diminished prominence of the personal element. His endorsement of the work of Newman in connection with the treatment of urethral stricture is unequivocal, and he fails to notice the adverse opinions of Keyes, Otis, and others concerning certain features of that work.

The impression that he leaves, aside from that of his candor and fairness, is that we have in electricity an agent of very great value for certain diseased conditions, but that it is no plaything; that even with the expensive batteries, meters, and other appliances, it is not an instrument of precision, for unless one is sufficiently a master of his apparatus to be able to adjust it and test it before each time of using it, something may go wrong, perhaps to the great damage and disappointment of both patient and physician. The writer does not mean to disparage electricity as a remedial agent any more than does the author whose book is under consideration; on the contrary, he is a firm believer in its great value. But he also believes that the agent is too often used without proper comprehension of its effects or of the laws which govern it, and such practice ought to be discouraged. It would be well if more attention were given to instruction on this subject in our colleges and hospitals,

for there are plenty of occasions in the experience of almost every physician when the use of electricity is indicated above all things else. Until such instruction is obtainable, books like this must hold the first place in imparting information upon this very important subject.

A. F. C.

#### CLINICAL LECTURES ON VARICOSE VEINS OF THE LOWER EXTREMITIES.

By WILLIAM H. BENNETT, F.R.C.S., Surgeon to St. George's Hospital, etc., London. 8vo., pp. 93. With three plates. London: Longmans, Green & Co., 1889.

THIS small work is divided into four parts, each consisting of a lecture, of which all but the third have already appeared in the *Lancet*. Lecture I. embraces deductions from statistics of 574 cases of varicose veins of the lower extremity treated at St. George's Hospital, London, and terminates with a summary of "probable causes." The single, perhaps, novel point brought out in this chapter is the much larger proportion of cases presenting in males than in females, if pregnancy as a causative factor is eliminated.

Lecture II. deals with (*a*) diagnosis in the incipient stages and (*b*) with the symptoms, mode of formation, and significance of circumscribed varix at the saphenous opening. (*a*) Diagnosis of late stages is, of course, palpable, but could we foretell the advent of this always distressing condition, treatment could be thereupon begun and would, most likely, prove valuable in proportion to the earliness of its institution. Also, early recognition is valuable in the determination of which veins are primarily and which secondarily become involved—a point of great value should operative interference prove necessary. As the author points out, hospital patients do not usually present themselves until the disease is well advanced, but in private practice, where slight ailments are more attentively regarded, he has had opportunities in large number to study and follow up the pre-varicose condition. This portion of the work is untilled ground so far as text-books are concerned, and will repay careful consideration. (*b*) Here are pointed out two distinct varieties of saphenous varix, their symptoms, and differential diagnosis; the varieties being accounted for by conclusions from elaborate studies of the normal and anomalous veins and their valves which may be involved. The significance of saphenous varix in relation to general varicosity of the limb is also discussed in theory which the author has been able partially to bear out by experiment and dissection. The anatomical study here presented is valuable in that it represents the result of many special dissections.

Lecture III. describes treatment for mild and uncomplicated cases. The point is taken that exercise should never be abandoned by those suffering from lesser degrees of uncomplicated varicosity, but that the exercise should be of various kinds and not such as to use rhythmically the same muscles to a point of fatigue, as, for instance, in bicycle riding. Constantly varying muscular action is beneficial, for then the same vessels are not continually pressed upon and circulation is promoted, while monotonous exercise tends to increase blood pressure and varicosity by constant back pressure in the same direction. Much infor-

mation is gathered into the chapter regarding the application of bandages, apparatus, etc., but as it includes nothing new of note, it calls for no special consideration here.

Lecture IV. is devoted to a consideration of the radical treatment of varicose veins, and is decidedly the most useful and readable portion of the book. The various subcutaneous operations are very properly relegated to obscurity in modern surgery. Then are described the operations of single or multiple simple ligations, ligations with excision of vein between; and, lastly, bodily excision of large portions of, or the entire diseased plexus, in exaggerated varicosities. The conditions for which the author urges radical operations as a palliative measure are: circumscribed varix of the saphenous opening, and "creeping" thrombus. In many cases of the former he has had a very remarkable subsidence of both tumor and symptoms—a complete cure, in fact—after cutting out a considerable section of the saphena vein at a much lower point, the probable explanation of which result is given in Lecture II.

The object of the proposed operation in cases of creeping thrombus is to separate the constantly extending clot from the proximal patent end of the vessel by dividing and excising a portion of the vein between two ligatures above the thrombus; or, if not extensive, it is proposed to excise the portion of vein containing the entire thrombus, and thus to do away with the undoubted tendency to coagulation which is produced by the presence of the old clot.

The plates appended to the work illustrate, before and after operation, three most successful cases of extensive varix excision and serve to demonstrate how much can be accomplished by radical interference in judiciously selected cases.

The monograph as a whole is well worthy of attention, but particularly so are Lectures II. and IV., which contain many genuine accessions to our knowledge of this poorly understood and rather neglected subject.

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PAPERS ON DERMATOLOGY. By E. D. MAPOTHER, M.D., ex-President Royal College of Surgeons in Ireland, etc. 8vo, pp. 104. London: J. & A. Churchill, 1889.

IN part this book is a reprint of several papers from the author's *Lectures on Skin Diseases*, and also of several papers which have since appeared in journal literature, all having been, however, subjected to more or less revision and amplification. Many of these, it is true, are familiar to the profession, but as they contain much that is suggestive and valuable, will admit of second reading. Of the subjects discussed, "The Vascularity of the Skin and the Communications of Subcutaneous with Visceral Veins," "The Correlations of Eczema and Gout," and "The Treatment of Angioma," are probably the most interesting and important.

H. W. S.

# PROGRESS OF MEDICAL SCIENCE.

## THERAPEUTICS.

UNDER THE CHARGE OF

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ASSISTANT PROFESSOR OF THERAPEUTICS IN HARVARD UNIVERSITY.

### THE CLINICAL VALUE OF SOMNAL AND CHLORALAMIDE.

Notwithstanding the fact that chloralamide has already been frequently mentioned in the pages of this journal, it seems necessary to revert to it again on account of the results obtained by DR. ADOLF ROBINSON, at the Friedrichshain City Hospital, Berlin. This writer has carefully noted the effects which followed the administration of thirty grains of chloralamide to each of fifty selected hospital cases suffering from a great variety of diseases, and has also done the same with somnal.

In order to form an opinion concerning the relative hypnotic value of the two drugs, the number of hours of sleep was recorded, and the patients divided into three classes accordingly, thus: 1, those who slept soundly; 2, moderately; and 3, very little. The following table shows the results at a glance:

	Number of patients sleeping		
	Soundly.	Moderately.	Very little.
Chloralamide . . . . .	13	14	23
Somnal . . . . .	15	13	22

From these figures it is evident that somnal failed to produce sleep in forty-four per cent. of the cases, and chloralamide in forty-six.

Several disagreeable phenomena appeared during the use of these drugs. Shortly after thirty grains of chloralamide had been given to each of three cases of uncompensated valvular disease of the heart, an alarming acceleration and weakening of the pulse was noticed. In one case the rate changed in a short time from 62 to 108 per minute, and the depression lasted for some time. A similar occurrence was noted in three out of four patients with typhoid fever who received a similar dose. Subsequently the same drug was

tried in smaller doses on the same patients; no disturbance of the heart's action resulted, likewise no sleep. Thirty grains of somnal were also given, and the pulse was found to decrease in rate, the volume remaining unchanged. Sleep followed in broken naps.

All of the patients were easily aroused. The most prolonged and the deepest sleep was produced by the combined action of both drugs; yet even in these cases the lightest touch would waken them.

Disturbances in the digestive tract were not infrequent. Abdominal pain was observed fourteen times after the exhibition of somnal, and nine times after chloralamide. One dose of thirty grains and four doses of forty-five grains of somnal were vomited within an hour of taking the drug. In two cases severe vomiting continued for several hours. Many patients complained of abdominal pain on the next day. Continued use of somnal appeared to impair the appetite; headache and dizziness were frequently complained of on the morning of the second day.

Sometimes a restless and excited condition came on two or three hours after taking chloralamide, some patients attempting to get out of bed and walk about, but toward morning they would go to sleep, and often slept most of the forenoon; in three cases, however, the stage of excitement lasted for a whole day. In the cases of typhoid fever forty-five grains of the somnal appeared to increase the restlessness, and on the next day there was more vomiting than usual; but a dose of thirty grains generally quieted them.

In patients suffering from mental excitement a decided benefit was attributed to the use both of somnal and of chloralamide in repeated doses of thirty grains. Of the former ninety grains and of the latter sixty grains were given daily without appreciable change in the heart's action. Robinson says: "In this class of patients chloralamide appears to act as promptly as chloral."

Taking all of these factors into consideration, the writer concludes that these two new drugs will not replace the older and more reliable hypnotics, but will prove useful in the treatment of certain cases.—*Deutsche med. Wochen.*, No. 49, 1889.

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#### MENTHOL IN ACUTE RHINITIS, INFLUENZA, AND OTHER AFFECTIONS OF THE NOSE AND THROAT.

MR. J. LENNOX BROWNE, F.R.C.S. Ed., writes in the *Medical Press and Circular*, January 8, 1890, regarding the use of menthol in the above affections. He says that the vapor of menthol checks in a manner hardly less than marvellous, acute colds in the head, and is also to be recommended with a certainty of success, if used on its first onset, in arresting or as a preventive of infection in epidemic influenza, and this even for cases in which the nasal symptoms commonly associated with the word influenza are not manifested.

Menthol exerts its action in the following manner:

1. It stimulates to contraction the capillary bloodvessels of the nose and throat, always dilated in the early stages of head cold and of influenza.
2. It arrests sneezing and rhinal flow.
3. It relieves, and indeed dissipates pain and fulness of the head by its analgesic properties, so well known by its action when applied externally to the brow in cases of *tic douloureux*.

4. It is powerfully germicide and antiseptic. It thus kills the microbe of infection, and prevents its dissemination.

The remedy may be employed by means of a general impregnation of its vapor through a room or house, or locally to the nostrils and air-passages; for both which purposes there are several methods:

a. A ten to twenty per cent. solution of menthol in almond oil, in liquid vaseline, or in one of the many other odorless paraffin compounds, can be sprayed into the nose or throat, or about a room.

b. By placing twenty or thirty grains in an apparatus specially designed by Rosenberg for administering the drug in cases of laryngeal consumption by inhalation in the form of vapor mingled with steam.

c. By placing a similar amount or one or two drachms of the oily solution in a Lee's steam-draft inhaler, or bronchitis kettle:

d. By a simple arrangement of placing a saucer of water containing a similar quantity of the crystals over a gas burner in the hall, by means of which the whole house is kept constantly permeated with the drug.

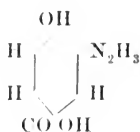
e. But by far the most convenient method for personal use is to carry always the ingenious pocket menthol inhaler, known as Cushman's, which should be used not only on the first approach of an attack, but three or four times a day during an epidemic, and always in cold-catching weather by those subject to head colds.

The instrument consists of a glass cylinder four inches in length, half an inch in diameter, and open at both ends. The tube contains crystals of menthol closely packed and prevented from escape by perforated zinc and cork. The opening at one end is twice the size of the other, the larger being intended for inhalation by the mouth, and the smaller for the nostril. The latter is the method which the author by preference recommends. It is not to be simply smelt, but well sniffed or inhaled, so as to cause some tingling or smarting, a sensation which is quickly followed by that of coolness, and openness of the previously "stuffed" and heated nostril.

The author concludes: "I have also employed menthol with advantage in the form of nasal spray, or brush application in diphtheria. For all forms of nasal disease causing obstruction to the natural breathway, I prescribe the menthol inhaler to the extent of hundreds per annum. By its use, when the nasal discharge is excessive, it is checked; when deficient and thickened, as in hypertrophic rhinitis, its healthy character is restored; and when arrested, inspissated and malodorous, as in atrophic rhinitis, fluidity is promoted and the foul smell corrected."—*Boston Medical and Surgical Journal*, Jan. 30, 1890.

#### ORTHIN.

PROF. R. KOBERT introduces a new antipyretic under the name of orthin. Its full name would be orthohydrazinparaoxybenzoic acid, as may be seen from the following formula:



This substance, although strictly speaking an acid, possesses basic properties. When uncombined it is very unstable, but in the form of a chloride it, may be kept, probably for months, in a dry state; but a solution in water must be made fresh when wanted. This solution when fresh is colorless, and is a strong reducing agent.

A dog of twelve kilogrammes in weight, received a gramme dose by the mouth once a day for four successive days, and other animals similar amounts, without loss of appetite or other disturbance. The temperature was not reduced below normal limits. Even larger doses were well borne, a kid, of three kilogrammes, receiving five grammes of the drug at a dose and showing no effect therefrom, except slight temporary intoxication. The urine was found to contain a reducing agent of such strength that Fehling's solution was immediately reduced in the cold. This agent was removed by ether, and then appeared as a brown substance. The reducing power of the urine in the case of the kid persisted after the single dose in diminishing amount for thirteen days. On the day after this experiment, two grammes of grape sugar were found in the urine, and less amounts in other cases. By further experiments on the appearance of glucose the conclusion is reached that orthin hinders the normal reduction of sugar in the blood and other tissues of the body. In the laboratory a solution of the drug in the blood in the ratio of 1 : 100,000 was found to dilate the bloodvessels. Kobert himself had no opportunity of testing orthin clinically, but suggested its use as an antipyretic, analgesic, and in certain diseases of the skin.

This has been undertaken by PROF. UNVERRICHT. As an antipyretic he used it in cases of typhoid fever, pneumonia, articular rheumatism, phthisis pulmonalis, pleurisy, and scorbutus, with very varying results. Sometimes a dose of 8 grains produced no effect; in other cases 6 grains was followed by a very pronounced fall of temperature two hours after the administration of the drug, with symptoms of collapse and profuse perspiration, followed by a chill and a return of the temperature to its original height. These chills, which were nearly always noticed, were not the only disagreeable effects, but eructations, vomiting, pain in the stomach, and later diarrhœa; also headache, sleeplessness, and a general feeling of depression sometimes occurred, even in cases in which no effect on the temperature had been produced. As an analgesic orthin was generally unsatisfactory. In one case, a medical student, who suffered from supraorbital neuralgia, a dose of  $1\frac{1}{2}$  grains produced a feeling of great oppression, but from that day he has not had a return of the neuralgia. Finally, in cases of psoriasis, orthin was applied externally in a ten per cent. ointment, but with less satisfactory results than were obtained from chrysarobin, which was used on the same patient as a control experiment.

The author concludes from his investigations that orthin, on account of the disagreeable effects which it often produces, as well as on account of its uncertainty, must be considered generally inferior to preparations now in use, but suggests that its action in neuralgia should receive further study.—*Deutsche medicin. Wochenschrift*, January 9, 1890.



## EXALGINE.

A short study of exalgine, with clinical notes of a few cases, is the subject of an article by DR. ALEXANDER B. POPE. Exalgine, recently discovered by Brignonnet, occurs either in fine acicular or long tablet-like crystals. It is only slightly soluble in cold, more soluble in hot water, and very soluble in dilute alcohol. Chemically it is methyl acetanilide, and is prepared by treating sodium acetanilide with iodide of methyl.

When given in doses of five grains, and repeated at intervals of four hours, no unpleasant effects have been noticed except in one case, where ringing in the ears and vertigo were complained of. Thus far no unpleasant effects have been noted upon the gastro-intestinal tract. It is an antipyretic, but is less powerful in this respect than antipyrin. It is an analgesic, and said to be more efficient than antipyrin or phenacetin. Its primary action is upon sensibility, and, secondarily, upon temperature. Good results have attended its use in visceral neuralgias. As an anti-rheumatic remedy it possesses some power, but is not to be compared with the salicylates. It has showed in several cases a distinct tendency to cause sleep. A tolerance of the drug is established by use, as is shown by experiments on animals, and a similar effect seems to be produced in regard to neuralgia in man. It is a powerful remedy and capable of causing death or severe toxic symptoms, if not prescribed with the greatest circumspection.

Exalgine is best ordered in alcoholic solution, but it may also be given in powder.

The author concludes that exalgine acts favorably in some cases where antipyrin and phenacetin have failed or for some reason are contra-indicated. The initial dose should not exceed five grains, and care should be exercised in repeating the dose. It probably possesses a certain degree of hypnotic power. It may cause symptoms resembling angina pectoris. Its most useful sphere of action thus far developed is in the treatment of pain. It has the advantage of not causing irritation of the stomach, rash, cyanosis, etc., so often seen after the use of antipyrin or acetanilid.—*New York Medical Journal*, February 22, 1890.

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POISONING BY EXALGINE AND ACETANILID.

MR. T. JESSOPP BOKENHAM and DR. E. LLOYD JONES report two cases of poisoning by the acetanilids. The first case, a girl aged twenty-four years, had myelitis, with great pain in the back and limbs, to relieve which exalgine (methyl-acetanilid) was given for five days in doses of two grains ter die; then doubled for two days, and finally six grains ter die were given for a week. At the end of that time, suddenly, the lips and cheeks were noticed to be blue and the pulse small and compressible, but not rapid, the temperature being normal. The cyanosis continued to increase, and five hours later the patient vomited, after which her nails and lips and cheeks were deeply cyanosed, but her feet were neither blue nor cold; frothy saliva escaped from the mouth, and she became delirious, with a temperature of 99°, and pulse 144, very small, regular, and compressible. She then began to improve, and five hours later had nearly recovered.

The second case, a lady, aged forty-three, very subject to migraine, had been for some months much relieved by antipyrin, but latterly this had failed; acetanilid, however, in doses of 8 grains, had generally been successful in relieving the pain. One morning the patient was seized with a severe attack shortly after rising. At 10.30 A.M. she took 4 grains of monobromo-acetanilid, and at 11 another. She noticed that her lips were blue; but as her headache was not better she took 8 grains of acetanilid at 11.30, and repeated it at 12.15 and 1 P.M. She soon became very cyanosed, and in about two hours lost consciousness for a short time. Her headache persisted, and she complained of great pain in the left shoulder, starting from the cardiac region and running to the tips of the fingers. The pulse was very weak and rose to 120. These symptoms gradually passed off during the night.—*British Medical Journal*, February 1, 1890.

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#### MORE ABOUT THE ACTION OF CHLOROFORM.

On his return from India, DR. LAUDER BRUNTON delivered an interesting address at the Medical Society, reviewing his work at Hyderabad. The conclusions which have already appeared in this journal were reiterated and supplemented with further details.

The discussion which followed was of more than usual interest. While admitting the force of Dr. Brunton's arguments as applied to the lower animals, the practical anæsthetists present deprecated the extension of conclusions drawn from the lower animals to man, unless positive evidence of uniformity of behavior in chloroformed men and beasts was adduced. It was also pointed out that the evidence of the action of the drug upon the heart was wholly negative, while the positive clinical observations of Snow, Clover, and living anæsthetists were directly opposed to this view.

While conceding the obvious and great value of experiments made upon the lower animals to elucidate conditions prevailing in man, one of the speakers pointed out that considerable divergence of reaction toward chloroform existed in different individuals, and that this was an additional reason for not relying too much upon negative evidence advanced by experimental research. None will seek to diminish the great value, both scientific and practical, of Dr. Brunton's painstaking researches, and it must be accepted as a sign of respect to him that so eager and lively a discussion was elicited by his description of his part in the work of the Hyderabad Chloroform Commission.—*Lancet*, February 15, 1890.

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#### THE CONSTITUENTS OF COD-LIVER OIL.

At a recent meeting of the Académie de Médecine DR. ARMAND GAUTIER presented the final results of his experimental research on the composition of cod-liver oil and the therapeutic action of its various ingredients. The fats have a slight acid reaction and are very readily emulsified in consequence of a small amount of bile which is present in the oil. They are easily absorbed and act chiefly to maintain the bodily heat by their combustion, and render unnecessary the oxidation of important tissues. Phosphorus in the form of organic phosphates, lecithine, and phosphoric acid, is present in consider-

able quantity. These compounds are readily assimilated and add materially to the nutritive properties of the oil. Iodine and bromine occur in very small amounts, intimately combined with organic bases. The alkaloids of cod-liver oil form quite a numerous class. The most important ones—butylamine, amylamine, morrhaine, and morrhucic acid—appear to act through the nervous system to hasten the metabolism of the tissues of the body. They are also diaphoretics and diuretics, and increase the appetite.

These results have been obtained by isolating the individual alkaloids and testing their action in laboratory experiments. Amylamine in large doses gave rise to tremor and convulsions in animals, while smaller amounts induced polyuria. These alkaloids are for the most part removed in clarifying the oil, and this fact should be borne in mind in prescribing it.—*La Semaine Médicale*, February 5, 1890.

#### LOCAL ANÆSTHESIA BY COCAINE.

RECLUS, in the *Congrès de Chirurgie*, 1889, regrets that this drug has not come into more general use. He has given it hypodermically over seven hundred times, and, in spite of the fact that it has been stigmatized as inefficient and dangerous, has met with very satisfactory results. To obtain the best local anæsthesia for surgical purposes the injections should be made “intradermically;” although local applications to mucous surfaces may often be employed for slight operations. The injections of cocaine should be confined to the skin and not be made into the subcutaneous tissue. Where the skin is thick, or where there is thickening from inflammation, several injections may be made, one over the other. For operations about the rectum and anus he advises the use of a rectal tampon wet with a two per cent. solution of cocaine and a circle of injections around the anus. Under this treatment he claims that the sphincter can be stretched and paralyzed without the least pain.

No accidents have attended the use of the drug in his practice. Reclus only found four fatal cases of cocaine poisoning recorded. The fatal dose was respectively: 0.75, 1.20, 1.25, and 1.50 grammes ( $10\frac{3}{4}$ ,  $18\frac{1}{2}$ ,  $19\frac{1}{4}$ , and 23 grains). With doses of 20 centigrammes (3 grains) accidents were very infrequent; but occasionally pallor, shortness of breath, loquacity, and a tendency to faintness were noticed. Generally 10 to 12 centigrammes ( $1\frac{1}{4}$  to 2 grains) were sufficient.—*Journal of American Medical Association*, February 8, 1890.

#### THE VALUE OF SODIUM SILICOFLUORIDE AS AN ANTISEPTIC.

MR. T. JESSOPP BOKENHAM reports the results of his experiments with silicofluoride of sodium for the purpose of ascertaining whether the drug could be safely given internally as an antiseptic, as had been claimed by Mr. William Thompson, who introduced it in 1888, and had given it in doses of one-half to one grain. The action of the salt on fermentation was first studied, and found to prevent alcoholic fermentation in the strength of  $\frac{1}{750}$ , and to delay it from  $\frac{1}{500}$  to  $\frac{1}{1050}$ ; but in the latter strength it can hardly be considered antiseptic. Its presence in nutrient gelatine in the ratio of  $\frac{1}{2000}$  produces no effect on the growth of the bacillus anthracis. Small amounts of a solution of the drug in water killed guinea-pigs when introduced into the stomach or when given hypodermically. A dose of 8 grains of the

solid salt taken by different persons after a meal produced at the end of an hour eructations with great nausea, accompanied by a feeling of lassitude, which lasted for some hours.

Although differing from other observers, the author considers his experiments sufficient to dispute its high value as an antiseptic, and to condemn its internal use.—*British Medical Journal*, February 15, 1890.

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#### ARISTOL.

DR. P. J. EICHHOFF has used aristol, which is a compound of iodine with thymol, both as a substitute for iodoform, and also in some forms of skin disease in which the application of iodoform has not been successful. It is applied to the skin in the form of a ten per cent. ointment and covered with gutta-percha paper. He has already used it in cases of varicose ulcer, ulcerating lupus of the face, chancre, psoriasis, mycosis trichophytina capillitii, scabies, herpes tonsurans, eczema, and congenital syphilitic ulcer. From his experience he draws the following conclusions: Aristol is always harmless, non-poisonous, and odorless. In only one case—chancre—was its therapeutic action less satisfactory than would have been expected with the use of iodoform. In a case of psoriasis, although slower in its action than the older agents—chrysarobin, pyrogallol, etc.—it possesses the advantage of being non-poisonous and of not producing unpleasant concomitant effects. In another class of skin diseases, the mycoses, aristol is quite as efficacious and at least as rapid and unirritating in its action as other remedies. In cases of varicose and syphilitic ulcers a quicker result may be expected from its use than by any other means. The same may be said of its use in lupus. The author recommends that it be given a thorough trial in surgical and gynecological practice.—*Monatshfte für prak. Dermat.*, No. 2, *Zeitschrift für Therapie*, February 1, 1890.

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#### PREPARATION OF ERGOTIN FOR HYPODERMIC INJECTION.

According to MR. A. W. GERRARD, the officinal ergotin (B. P.) is merely a purified extract of the crude drug. The chief objection to its hypodermic use is the irritation it causes, which, however deeply it may be injected into the muscles, is at times very great. Gerrard finds that ergotin is very acid in reaction and full of inert matter, and that if these are eliminated great improvement results. For this purpose one part of ergotin may be treated with four parts of absolute alcohol, stirring well during the addition. Then pour off the alcoholic solution and evaporate over a water bath to a soft residue. This treatment removes inorganic salts and a mucus-like substance. The acid still remains, and should be carefully neutralized with a solution of ammonia. Ergotin thus treated is highly active, and rarely causes severe irritation after injection. To prepare a solution that keeps well for hypodermic use, rub up one part of ergotin with one of glycerin and two of water.—*Illustrated Medical News*, January 25, 1890.

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#### ANTIPYRIN AND THALLIN AS HÆMOSTATICS.

DR. MONCORVO, in the *Journal de Médecine de Paris*, calls attention to the direct hæmostatic action of antipyrin and thallin. He believes this action

due to a constriction of the divided vessels as well as to coagulation of the blood, but says that further experiments are necessary to establish the truth of this assertion. The hæmostatic action of these drugs has been studied both in the laboratory and clinically. Acetanilide and phenacetin do not possess this property.—*Journal of American Medical Association*, February 1, 1890.

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OFFICIAL TRIAL OF AMADON IN THE TREATMENT OF CARCINOMA.

In two cases of uterine cancer occurring in his clinic, PROFESSOR SLAVI-AUSKI administered amadon (*polyporus igniarius*) which had been asserted to be a certain remedy for the disease. This was done at the request of the Russian Minister of War. A decoction of six drachms to three pounds of water was made. A teacupful was given internally from three to five times a day, and an injection of the same an equal number of times. Dr. J. Lapis states that there have been no beneficial effects from this treatment, and that all reported cures must be due to a false diagnosis.—*Lancet*, February 15, 1890.

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URAL, A NEW HYPNOTIC.

*La France Médicale* gives a brief description of ural. It is said to bear a close resemblance to somnal. It is obtained by mixing urethane and chloral; it occurs in crystals soluble in alcohol, and but little soluble in water. The melting point is 106°, and it volatilizes without decomposing. The taste is bitter; it does not modify blood-pressure; no untoward accidents have as yet been reported from its use. It is claimed that it is a pure hypnotic, and should be used for the insomnia of cardiac diseases and in mental and hysterical wakefulness.—*New York Medical Journal*, February 1, 1890.

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MEDICINE.

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UNDER THE CHARGE OF

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INFLUENZA.

BAUMLER (*Münch. med. Wochenschr.*, 1890, No. 2) in discussing the epidemic, especially as it appeared in Freiburg, says that there is no doubt that it is an infectious disease. The question arises whether it is a miasmatic, a contagious miasmatic, or a purely contagious disorder. The great rapidity

of its spread would indicate the former; but it is not possible that all the germs for such a wide distribution could come from one place, and it is scarcely conceivable that suitable conditions for multiplication of the germ in the earth, and the formation in this way of new miasmatic foci, could be present in all the places in which the disease breaks out. It is, therefore, probable that the human body itself forms the nidus for the germ, and that we have to do with a contagious-miasmatic or a purely contagious disease. The absence of discoverable period of incubation might be urged against this belief, but the author does not consider this objection of any weight, and is of the opinion that the disease is a purely contagious one, with a very intense contagiousness and a very short period of incubation.

Although the general susceptibility to influenza is very great, yet, as in other infectious diseases, many individuals exhibit total immunity.

The symptoms vary greatly, and there may be an entire absence of all catarrhal implication of the respiratory passages. Very often the affection begins with sudden and high fever, vomiting, sometimes diarrhœa, pains in the joints, and general depression; while at the height of the fever there often appears great redness of the conjunctiva, face, and mucous membrane of the throat. Sometimes the temperature falls with a sweat after twenty-four hours. In other cases catarrh of the respiratory passages develops with the commencement of the disease, and extends, and the fever lasts some days. An almost constant symptom in the cases observed was a slight but evident enlargement of the spleen. Slight icterus was seen in almost all the cases.

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#### ANATOMICAL AND BACTERIOLOGICAL OBSERVATIONS ON INFLUENZA.

RIBBERT (*Deutsch. med. Wochensch.*, January 23, 1890) has made eight autopsies on persons who had suffered from influenza, and two of whom were pure cases of the disease, the other six being complicated by pneumonia.

The gross anatomical appearance of the lungs in the pneumonic cases differed from those seen in ordinary croupous pneumonia, in that the cut surface was almost smooth instead of granular, and the exudate soft and very rich in cells, but with little fibrin. In three instances the infiltration was lobar, and in three lobular.

In all the cases there was a variable intensity of redness of the mucous membrane of the trachea, large bronchi, and sometimes of the larynx, due to marked cellular infiltration of the mucosa and congestion of the bloodvessels. In all the cases the spleen was enlarged and soft. The kidneys exhibited cloudy swelling of the parenchyma in one case, and fatty degeneration in another.

Other changes in the different organs, noticed in some cases, were independent of the influenza, but probably exerted a deleterious action upon its course. Bacteriological studies were carried out more or less completely in seven of the cases, especial interest centering in the two in which there had been no pneumonia. Though both a staphylococcus and a streptococcus were present in some instances, the author concluded that only the streptococcus (*pyogenes* or of *erysipelas*) is the characteristic microorganism present, as the staphylococcus was only to be found in the trachea and lungs, and not always there. It is not certain that the coccus produces the influenza, although

we recognize it as the usual cause of secondary diseases. Thus it can be found in the numerous secondary affections at times arising in the course of diphtheria, scarlatina, typhoid fever, etc. A certain number of cases of croupous pneumonia are due to it; notably the very fatal class in whom the lung is smooth on section and softer and richer in cells than in ordinary cases. The many forms in which grippe shows itself would indicate the presence of such a microbe capable of producing many different symptoms. Supposing that the streptococcus is in effect the cause of influenza, we must assume, in order to explain the occurrence of epidemics, that the microbe is enormously increased in numbers through unknown causes, and widely disseminated through atmospheric influences. The port of entrance for it must be the respiratory tract, and this, perhaps, explains why neither erysipelas nor suppuration is produced by it.

The author does not consider it at all proven that the streptococcus produces influenza, and admits the possibility that it simply finds an unusually favorable nidus in this disease, while the real cause is some virus still undiscovered.

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#### DISINFECTION OF THE DEJECTIONS OF TYPHOID FEVER AND CHOLERA.

SCHAUZ (*Deutsch. med. Wochensch.*, No. 77, January 23, 1890) carefully reviews the literature of the subject in the effort to discover a reliable method of disinfecting the fecal dejections of cholera and typhoid patients. With especial care he studied experimentally the action of quick lime in disinfecting the feces. He found that it was excellent for fluid substances, but was unsuited for penetrating into the interior of solid particles of fecal matter; as it formed a firm, insoluble precipitate which coated their exterior, while in the interior the germs remained uninjured.

He advises that acids be employed for disinfecting the passages in these diseases, as their value has been already proved. According to his calculations, the following amounts of the different acids are required:

Of a mixture of 100 grammes crude  $\text{H}_2\text{SO}_4$  and 1 litre of water, a quantity equalling one-fourth the volume of the stool is required in typhoid fever, and one-sixth the volume in cholera.

Of a mixture of 150 grammes crude  $\text{HNO}_3$  and 1 litre of water, one-half the volume is required in typhoid fever, and one-fourth in cholera.

Of a mixture of 250 grammes crude  $\text{HCl}$  and 1 litre of water, one-half the volume is required in typhoid fever and one-third in cholera.

Of vinegar, or pyroligneous acid, two-thirds the volume are required in typhoid fever, and one-half in cholera.

Of five per cent. carbolic acid solution, three-quarters the volume is required in typhoid fever, and one-half in cholera.

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#### MASKED INTERMITTENT FEVER IN CHILDREN.

MORRIS J. LEWIS (*University Medical Magazine*, March, 1890) comments on the large number of cases in which intermittent fever in children is masked. He has noticed that bronchial catarrh occurs with especial fre-

quency, not merely as one of the symptoms of the attack, but sometimes as the only symptom of prominence, and that for which treatment is asked.

Of 113 cases of intermittent fever presenting themselves for treatment at the Children's Hospital in Philadelphia, during the year 1887, thirty-four (thirty per cent.) were instances of marked intermittent, having bronchial catarrh as the prominent symptom. A certain number of the cases were at first treated with chloride or carbonate of ammonium with little benefit, while relief at once followed the administration of quinine. In cases of ordinary bronchitis, quinine did not appear to be of any benefit. Many of the children were quite pallid, and had slightly enlarged spleens. Intermission in the bronchial symptoms did not appear to be at all marked. In many of the cases the diagnosis depended largely on the fact that the patients came from a district known to be malarious. A case which he reports is a typical example: A child of ten years had for about a week suffered from very severe cough with abundant expectoration. He then began to experience chilly sensations, especially in the evening. Fever was not a prominent symptom. The spleen was slightly enlarged, and the usual symptoms of bronchitic catarrh were present. Improvement in all respects began immediately after he was put on ten grains of quinine daily, and in a short time he was well.

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#### ON PFEIFFER'S TEST FOR LATENT GOUT.

ROBERTS (*Lancet*, January 4, 1890), in commenting on this test, describes it as follows: The acid urine of twenty-four hours, after preliminary filtration, is divided into two portions. One of these is passed through a filter on which some chemically pure uric acid has been placed. The other portion is not so treated. An equal volume, say 100 c. cm. of each portion is then acidulated with strong hydrochloric acid, and set aside until the precipitated uric acid has fully separated, which is then collected on a dried filter and weighed. Pfeiffer claimed that the results of this method should indicate the presence of the gouty state and of the state of uro-lithiasis, even when none of the usual symptoms of the disorders were present. He stated, namely, that in the case of persons free from lithiasis the portion of urine which had been passed through the uric acid filter yielded as much or nearly as much uric acid as the other portion; while in persons suffering from gout or uric acid gravel the portion of urine passed through the uric acid filter deposited so large a proportion of its uric acid there, that after treatment with hydrochloric acid it no longer yielded any, or only a slight, precipitate of it. Pfeiffer concluded that in the urine of gouty or lithæmic subjects a large proportion of the uric acid existed in the urine in a free or easily separable state, and not as a urate, as it does in healthy urine.

The uric acid placed on the filter, like the stone in the bladder, attracts to itself the free acid in the urine, allowing the combined acid to pass through. He claimed that in this test we have an infallible method for recognizing latent gout.

Schetelig has made similar studies, and accepts Pfeiffer's conclusions.

Roberts has been led to undertake a series of experiments in the same line. These speedily convinced him that acid urines in passing through a uric acid



filter deposited a part of their uric acid on the filter. He confirmed the observation that the amount subsequently precipitated after treating the urine with hydrochloric acid varied very greatly, but he was unable to interpret these results as evidences of the existence or non-existence of the gouty or gravelly state. He found, namely, that the urine of persons certainly free from gout deposited on some days nearly all their uric acid on the uric acid filter, while, on other days, only a small proportion of the acid adhered to it. A still more important objection to the value of the test was the observation that the uric acid filter did not serve to separate the free from the combined acid. For, if it be true that the free acid is removed by filtering, there should be no additional loss of acid on a second or third filtration. But repeated experiments showed that the urine progressively lost its uric acid when subjected to repeated filtration; three being generally sufficient to clear the urine of *all* of it. Pfeiffer's assumption as to the value of the test is, therefore, entirely disposed of.

Roberts believes that the deposition of uric acid on the filter is due to the action of the crystals, previously placed there, upon the urates, already on the point of undergoing the decomposition to which they would, in any case, succumb in the course of a few hours or days. The precipitation of the uric acid is simply greatly accelerated by the presence of the crystals, which act as a potent soliciting agent. The varying and inconstant results depend on several factors; namely, the degree of acidity of the urine, the comparative richness of the urine in uric acid, the rate at which the filtration is conducted, and the quantity of uric acid placed upon the filter.

A simpler and surer way of estimating the degree of proneness of the urine to deposit uric acid, is to keep specimens of the twenty-four hours' urine in corked bottles, in a warm place to guard against the deposition of amorphous urates, and with the addition of a few drops of chloroform to prevent decomposition. If the urine is acid, and is not very poor in uric acid, crystals of this will eventually be deposited, and the time at which these appear indicates the proneness of the urine to this deposition. If crystals habitually appear in the course of two or three hours the existence of the uric acid diathesis is indicated. If, on the other hand, the deposition only commences after twelve or twenty-four hours, the observation has no pathological significance.

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#### WINCKEL'S DISEASE.

An endemic of acute hæmoglobinuria in newly born children was observed by Winckel, at Dresden, in 1879, the symptoms being cyanosis, icterus, hæmorrhages from various organs, dark-red discoloration of the renal pyramids, which contained streaks of hæmoglobin, and fatty degeneration of the liver and other organs. Nineteen of the children died on an average within thirty-two hours after the beginning of the symptoms. A few other cases have been reported by various observers, the last one being that recently carefully studied by HIRST (*University Medical Magazine*, March, 1890), which occurred in the maternity pavilion of the University Hospital, Philadelphia. Labor was induced in the mother of the patient sixteen days before term, but was normal in other respects. The child, a female, appeared well developed, and was not asphyxiated. On the following day blisters were

found on the legs and buttocks, probably the result of burning by hot-water cans. On the day succeeding this the body presented a brownish-green color, evidently a combination of cyanosis and icterus. The urine was of a dark-brown color, and contained methæmoglobin. Inhalations of oxygen relieved the cyanosis to a considerable extent, but on the fifth day the child died. Temperature was normal until the fourth day, when the thermometer registered 102° F. On the examination of the blood the red cells numbered 5,700,000. Three days later they equalled 3,400,000, the ratio of white to red being 1 : 13.5, and the hæmoglobin eighty-nine per cent. Poikilocytosis was well marked. Bacteriological studies of the blood revealed the presence of a micrococcus.

At the post-mortem examination the body was found emaciated, and with an icteric hue of the skin and mucous membranes. Several dark, gangrenous-looking patches were seen, said to be the result of the contact of hot-water bottles. The lungs exhibited a large number of hemorrhagic infarcts of different sizes. The heart contained dark, fluid blood, and its muscle was somewhat degenerated. The cord and umbilicus were normal, as were the intestines and stomach. The liver seemed somewhat altered. The kidneys were cyanosed and injected. The mucous membrane of the bladder showed a number of pin-point foci of ecchymosis. The spleen was large and congested. The mesenteric glands enlarged and hard.

Microscopic examination showed cocci in the liver, kidneys, spleen, and lungs. There was some fatty degeneration of the heart muscle, and in the kidneys there was globular nephritis.

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#### LEUKÆMIA.

V. MAYER (quoted in *Centralblatt f. klin. Med.*, 1890, No. 1, 21) reports 21 cases of leukæmia, on 6 of which autopsies were made. 10 of them were females, 11 males. Most of the patients were between twenty and thirty years of age. The youngest was one and a quarter years, and the oldest sixty-nine years of age.

The majority belonged to the laboring class; from which circumstance the author concludes that unfavorable social conditions and bodily over-exertion are important etiologic factors. In women disorders of the sexual apparatus appear to exert some influence. All the cases were mixed forms, though the splenic form predominated. Implication of the bone marrow could in no case be established during life, in spite of some pain over the sternum and tibia. At the autopsies involvement of the marrow of the femur and of the bodies of the vertebræ was discovered in 2 cases. The enlargement of the spleen was, as a rule, huge, and in one case the tumor could be reached from the vagina. In 9 cases violent pain was caused by palpating the spleen.

The hemorrhagic diathesis was a very prominent symptom in the cases; there having been hemorrhage from the nose, intestine, and uterus; parenchymatous hemorrhage into the tissues and in the bones; and retinal hemorrhages. Fever of an irregular type was at times present. The increase of the number of white blood cells was comparatively slight in 4 cases (1:19 to 1:40). In the remaining the number was enormously increased (1:2.5).

Considering the fact that all the patients came under treatment in a com-

paratively advanced stage of the disease the therapeutic results were tolerably good. Quinine, iron, and Fowler's solution were chiefly employed. By their use, combined with good nourishment, 10 cases exhibited an evident, and even a considerable improvement; the condition of the blood also being improved.

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#### LEUKÆMIA ACUTISSIMA AND CENTRIPETAL VENOUS PULSE.

SENATOR (*Münch. med. Wochenschr.*, January 21, 1890) reports the case of a woman of forty-five years who had always been well, except for rather profuse bleeding during labor and at her menses, and who was admitted to the hospital for prolapse. She was found to be exceedingly pale, to have decided remitting fever, and the usual symptoms of aortic insufficiency, together with a centripetal venous pulsation, developing shortly before death, and seen in the medium-sized veins of the back of the hand, and disappearing on pressure on the distal portion of the vein. At the first the anomaly in the blood was rather striking, but the second examination, made four days later, revealed an unusually severe case of leukæmia. At the autopsy aortic insufficiency, the result of ulcerative endocarditis, interstitial nephritis, and leukæmia, were found. Albumen had never been observed in the urine.

Senator comments on the rarity of such cases of rapidly developing leukæmia, and says that one of the most remarkable was observed by him in twins, in both of whom pseudo-leukæmia first appeared, which within two months turned into leukæmia. He has not, however, seen so rapid a case as the one now reported. The cause he believes to have been the frequent losses of blood.

With regard to the venous pulse, he considers that this condition is to be explained by the diminished elasticity of the walls of the arteries, always present in aortic insufficiency, combined with a relaxation of the muscular tone of the vessels, which permits the blood to enter the veins in waves instead of in a constant even stream. This is especially apt to happen under the influence of a hypertrophied ventricle.

The venous pulse must be carefully distinguished from the so-called "communicated" pulse, as he has seen it in three instances in phthisis with fever. In these cases the veins of the skin were overfilled, the skin relaxed, and the heart laboring forcibly as the result of the irritation of the fever and the carbonic acid intoxication. The arteries therefore pulsated violently, and easily communicated their motion to the veins.

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#### INFLAMMATORY LEUCOCYTOSIS.

LIMBECK (*Münch. med. Wochenschr.*, January 14, 1890) has studied the changes in the blood in a large number of cases of different febrile conditions. He found the number of white blood cells in man to equal physiologically 8000 to 9000 in the cubic millimetre; which in comparison with 5,000,000 red cells makes a ratio of 1 : 625-555. As a rule the number of leucocytes is increased by the ingestion of food, and diminished by hunger. With these physiological bases the author examined the condition of the blood in a large number of febrile patients. He found an inflammatory leucocytosis only in

those in which there was exudation somewhere in the body, as in pleurisy, erysipelas, meningitis, peritonitis, and polyarthritis, and that the greater the exudation, the more intense the leucocytosis. On the other hand, infectious diseases in which there was no exudation, as sepsis, intermittent and typhoid fevers, exhibited no leucocytosis. In the latter disease there even seemed to be a diminution in the number of leucocytes. He remarks upon the frequent combination of inflammatory leucocytosis and peptonuria. The presence of leucocytosis he would make a means of differential diagnosis between typhoid fever and infectious diseases which are attended by exudations.

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#### CONGESTIVE VENOUS DIATHESIS AND GENERAL VENOUS CONGESTION.

CUFFER and SOLIER (*La Sem. Med.*, 1890, Nos. 1, 8) report two cases, occurring respectively in a man of sixty years, and a woman of forty-nine, in which there appeared an aggregation of symptoms of venous congestion, both of the superficial and deeper tissues of the body. There were present, for example, vesicular and erythematous eruptions, conjunctivitis, gingivitis, coryza, hypertrophy of the liver and spleen, albuminuria, catarrh of the lungs with sanguinolent expectoration, abdominal pain and vomiting, hæmatemesis, and diarrhœa. In addition to these there were various nervous symptoms, apparently due to vasomotor, medullary, and cerebral congestion. Neither of the patients had any family or personal history which could account for the disorder in any other way. An old disposition to hæmorrhoids and epistaxis, well shown in one, at least, of the cases; as well as the uselessness of all the therapeutic measures employed, except the derivative treatment with aloes, which brought back the hæmorrhoids, leads the authors to believe in the presence of a congenital predisposition; a primitive affection of the venous radicles. It is possible that this congestive venous diathesis might terminate in cirrhosis of the liver, in nephritis, or by the production of infarcts in the kidneys, lungs, or elsewhere.

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#### DISTURBANCES OF SENSIBILITY AND ATAXIA.

RUMPF (*Deutsches Archiv f. klin. Med.*, xlv. 35) refers to the view accepted by some writers, and especially by Leyden, that ataxia is of a sensory nature. Also to the investigations of Goldscheider, which proved that diminution of the power of sensory perception could be artificially induced, *e. g.*, by the faradic current. Goldscheider, however, claimed that this diminution produced ataxia, which Rumpf cannot admit. In order to throw some light, from a clinical point of view, upon the relation of ataxia to diminution of sensibility, it was necessary to find pathological cases in which there were such evidences of diminution as could be induced in healthy persons by artificial means, yet without any evidences of disturbances essentially connected with ataxia.

• He first reports in full detail an interesting case in which there existed in the lower extremities diminution of cutaneous sensibility, including temperature sense, though there was no loss of the sense of the position of the limbs. In the hands and arms there was, in addition to paresis of sensibility in all its varieties, a decided diminution of the sense of the position, and of the

passive motion of the joints, combined with a diminution of the muscle sense. If Leyden, Goldscheider, Pick, and others are correct, this patient would have, of necessity, exhibited ataxia. Not a trace of incoördination was, however, to be found. Rumpf reports another case by way of contrast to this, in which the same condition of the hands was present, accompanied in this instance by extreme incoördination. He briefly details two other cases, in both of which the same condition of diminished sensation without ataxia existed.

It was now an important matter to determine in how far the eyes could be employed to take the place of the lost perception of sensations described. For this purpose the nature of the handwriting was a useful test. Specimens of handwriting which the author depicts, show that in normal men there is no essential difference in it, whether the eyes are open or shut. In the case of the first patient described, however, the handwriting made while the eyes were closed was decidedly larger than that made when the eyes were open. The same difference was observed in the author's own handwriting when the sensibility was diminished by the passage of a faradic current, and the eyes were meantime kept shut. There was no evidence of ataxia in the writing in either case.

The same condition should appear in the writing of patients with ataxia; and the author exhibits specimens which prove that when there are no such affections of sensation as described, closing of the eyes does not alter the characters of the letters; but that when such symptoms exist, the letters become larger. Another case reported indicates that the alteration of the size in the writing has nothing whatever to do with the ataxia, since in this instance, though there was great ataxia, there was but slight diminution of sensation in the hands, and but the slightest increase in the size of the letters when the eyes were shut.

In endeavoring to draw from these observations some conclusions regarding the relation of sensation to movements and to the handwriting, he states his belief that the exercise of movements depends upon two centres, probably widely separated in the brain. One of these receives the imprint of sensations received by the skin, muscles, and joints, and on the other are impressed the pictures of motions received by the eye. A motor innervation can come from either centre, but to permit of this the knowledge of the position of the part at the moment of innervation is necessary. This knowledge can come either through the centre for sensation, or by way of the eyes, so that the inactivity of one centre is covered by the other. If neither centre operates (paralysis of the centre of sensation, and closure of the eyes) a more or less complete paralysis must result. For a movement which has been well practised under the double control, only the initial knowledge is necessary. In the event of the deficiency of one centre, the reflex movements are best performed; *i. e.*, those which have been so practised that an especial innervation is not needed after the motion is once set going. More difficult to perform are those which are always done under the control of the eyes, such as writing; with these it is necessary that the place and position of the part to be moved shall be known, and also that there shall be consciousness of each individual innervation. If there is a diminution of the perception of movements in the skin, muscles, joints, etc., the decidedly greater motion on closing the eyes will

indicate the consummation of the innervations; but this enlargement of the movements is uniform and not ataxic. Ataxia is, it is true, often *accompanied* by the disturbances of sensation referred to, and is not uninfluenced by them. If the influence of the eyes is removed by shutting them, the letters of the handwriting become larger in proportion to the degree of diminution in the perception of sensations.

Ataxia, if present, is also made more evident because the interruptions in uniform movements, which constitute it, are magnified in a way exactly similar to the magnifying of the movements themselves. If the paralysis of sensation is of very great degree, the absence, when the eyes are shut, of knowledge of the initial position of the part to be moved, may render the performance of a movement entirely impossible. And since many movements are composed of accomplished single innervations, the knowledge when the eyes are shut of the initial position will be required very frequently; and with the reduction of this knowledge, a varying innervation extending over a prolonged time becomes worse and worse. Moreover, with the closure of the eyes the power to restrain excessive movements is removed.

These remarks apply especially to the ataxia of the arms. As regards the gait, this is a movement so much practised that only the knowledge of one position at the commencement of the process is necessary. After the single innervation given at this time, the motion goes on uniformly unless some obstruction operates, such as excessive ataxia, or some inhibitory action on the part of the brain.

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#### THE TREATMENT OF PHTHISIS WITH THE EMULSION OF PERU BALSAM.

OPITZ (quoted in *Wien. med. Presse*, 1889, No. 50, 1982) has been induced by the writings of Landerer on the subject to employ the balsam of Peru in the treatment of phthisis. He has not, however, used the diluted emulsion, and by intra-venous injection, as Landerer did. The preparation which he employed consists of 15 grains of gum Arabic dissolved in a half drachm of water, and then rubbed up with 30 grains of Peru balsam, and sufficient of 0.75 per cent. chloride of sodium solution to make  $\frac{3}{4}$  ij ℥ xl. The emulsion is then neutralized with bicarbonate of sodium and sterilized by exposure for an hour to a temperature of 230° F. The preparation was used by subcutaneous injection, the point of election being the first or second intercostal space in the parasternal line. The most careful antiseptic precautions were employed. The injections were given twice a week. They were always painful, but produced abscesses in no case. No other treatment, except the purely symptomatic, was employed in the cases under consideration.

In three cases in which no extended destruction of pulmonary tissue had yet taken place, the removal of all catarrhal symptoms followed treatment lasting for four or five weeks, and sputum containing bacilli ceased to be present. After several months of treatment no pulmonary symptoms remained except the evidences of a cicatrix. There was also a great increase in weight.

In five cases in which large cavities had already commenced to form in the lungs, no marked alteration in the objective pulmonary symptoms could be detected, but a diminution of cough and of expectoration accompanied improvement in the general condition. In the first weeks of treatment there

occurred a decided loss of weight, but with the seventh or eighth week an increase in weight commenced, which soon much overbalanced the previous loss.

Another group of cases included those in which the terminal stage of the disease had been reached, and in these there was naturally no improvement.

#### THE TREATMENT OF CHOLELITHIASIS.

S. ROSENBERG (*Berl. klin. Wochenschr.*, December 9, 1889) collects 21 cases of cholelithiasis treated with olive oil; in only 2 of which was the result doubtful, while in his other 19 improvement or recovery was observed. Although doubtless many cases in which no improvement has taken place have simply not been published, yet the number of those benefited justifies the discussion of the manner in which the oil acts, and its value compared with other methods of treatment of biliary colics. Alkalies and alkaline mineral waters have long held a prominent place in the treatment of gall-stones. Neither they nor any other drugs have any solvent power on the biliary concretions; it is even doubtful whether they possess any cholagogue action. The author quotes several of the contradictory opinions regarding the action of the carbonate and bicarbonate, the sulphate and phosphate of soda, and the natural and artificial Karlsbad water. This uncertainty has fostered the opinion which has been expressed, that it is not the alkali, but solely the water holding it in solution which exerts a cholagogue action. Water, and especially warm water, has undoubtedly the power to increase the amount and diminish the consistency of the bile. The author believes it certain that of all the cholagogues there is none whose action is so inconstant and so insignificant as that of the alkalies.

Another method of treatment, proposed by Durande, is the administration of a mixture of turpentine and ether. Regarding this, too, there have been most contradictory views expressed. Rosenberg's own experiments led him to the conclusion that ether has no cholagogue power, but that turpentine increases the amount of the bile, and diminishes its consistence. Nevertheless, in doses sufficient to accomplish this it produces so great gastric disturbance that its employment is to be discountenanced.

One of the most energetic substances for increasing the flow of bile is the bile itself. Unfortunately its administration greatly increases the biliary consistence also; so that, instead of helping to wash out the concretions, there is danger of aiding their growth. The salicylate of soda is a drug which all observers unite in considering a very efficient cholagogue, as it both augments and thins the bile. The author has had excellent clinical results with it in several cases.

Olive oil in large doses acts in much the same way as the salicylate of soda, but much more powerfully. Most experiments tend to prove that the action of oil cannot be due to any power on its part to penetrate from the duodenum into the gall-bladder, and there to soften the stones. The author's own view, confirmed by his experiments, is that in order to digest the large quantities of oil or fat in the intestine, there occurs a great increase in the secretion of bile, and a consequent dilution of it; and that this increase is far greater than that produced by either the administration of bile or of salicylate of soda.

This augmented secretion may either entirely wash the stones out of the bladder, or at least dislodge them from the position in which they obstruct the discharge of bile into the duodenum. If, now, olive oil has really so powerful an influence on the biliary secretion, we would expect that in countries where much of it is regularly ingested cholelithiasis would occur but seldom. And, in fact, according to a personal communication from Cantani, the disease is not very common in Italy.

Unfortunately, the employment of oil is interfered with to a large extent by the intolerance which many stomachs possess for it. It is, therefore, better to begin the treatment of any case with the employment of the milder cholagogues, especially the salicylate of soda. If this drug fails to give relief, there should be no delay in beginning the treatment with oil. It is advisable to disguise the nature of the drug by the addition of cognac, menthol, and yolk of egg. Failures with this plan of treatment will, doubtless, not be rare; at the same time many of these apparent failures will be due to errors in diagnosis, the symptoms being in reality due to a carcinoma, or to the presence of echinococci, etc. In other cases of true cholelithiasis the condition may be such that nothing short of operative interference can give relief. If treatment succeeds in removing the stones, care must be taken that there is no formation of fresh ones. This is to be prevented by avoiding a condensation of bile, and by removing catarrh of the bile-ducts. The first may be accomplished by the administration, for a long time, of small doses of salicylate of soda, and of oil and fat in the form of oily salads, sardines, etc. The catarrh can be well treated by alkalies and the alkaline mineral waters, which are of more value for this purpose than in the removal of the stones.

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#### DIAGNOSIS AND TREATMENT OF ANEURISM OF THE AORTA.

POWELL (*Lancet*, January 4, 1890) says that though pathologically aneurisms are still divided into the fusiform and sacculated forms, *clinically* the phenomena characteristic of aneurism are scarcely ever observed except in the latter variety. It would be a fatal mistake to treat the fusiform aneurism—"false aneurism," from a clinical point of view—according to the methods which are indicated in the case of the true sacculated aneurism. The fusiform dilatations usually occupy the first portion of the aorta, seldom produce pressure symptoms, have no tendency to rupture, are usually associated with valvular lesions of the heart, and demand the treatment appropriate to heart diseases.

The essential phenomena of sacculated aneurism are primarily those derived from the pressure of a tumor on surrounding parts, and secondarily those indicating that it is a vessel-tumor. The author relates several cases illustrative of the importance of laying the greater weight on the presence of signs of pressure, rather than on such symptoms as bruit, thrill, and the like. According to his experience, about one-half of the cases of sacculated aneurism are without any murmur, and many of these never develop any to the end of the case. A systolic murmur, heard over an area remote from the heart, such as the dorsal or supra-spinous regions, is, however, of great diagnostic value, but not positively convincing, as morbid growths may sometimes



produce the same symptom. A diastolic murmur is rarer, but is absolute proof of intra-arterial disease. Thrill is a comparatively rare sign, while it is common in spurious cases. It, with loud systolic and sometimes diastolic murmur, generally accompanies marked fusiform dilatation of the ascending aorta. But the situation of the signs near the aortic orifice, and the absence of pressure signs, will generally distinguish the condition from true sacculated aneurism.

The author includes in his paper the following valuable tabular arrangement of the "pressure signs of aneurism":

Pressure on parietes causes	{	Local pain.	
	{	Local tumor (pulsation).	
	{	Absorption of tissues.	
Pressure on nerve causes	{	Radiating neuralgic pains.	{ Unequal pupils, paralysis
	{	Paralysis.	{ of vocal cords.
	{	Asthmatic dyspnœa.	{ Hemiplegia or paraplegia.
Pressure on vessels causes	{	Inequality of pulses.	{ Local œdemas.
	{	Obstruction of veins.	{ Enlarged collateral veins.
	{	Tracheal signs.	{ Paroxysmal dyspnœa.
	{		{ Brassy cough.
Pressure on air-tubes causes	{		{ Bilateral stridor.
	{		{ Also paroxysmal dyspnœa
	{		{ and cough.
	{	Bronchial signs.	{ Unilateral stridor.
	{		{ Filling and consolidation
	{		{ of the lung behind.
Pressure on œsophagus causes	{	Dysphagia.	
Pressure on lung causes	{	Consolidation, displacement.	

He refers to the difficulty in diagnosing aortic aneurisms which present toward the spinal column; the evidence gained from auscultation being in this case chiefly to be relied on to determine the cause of the pressure symptoms. He recommends that a stiff stethoscope be employed, because it will transmit the sensation of delicate impulses imperceptible to the hand, and especially the peculiar jog or shock synchronous with the second sound. This symptom is absolutely diagnostic of sacculated aneurism, and cannot be detected with the flexible stethoscope.

The author has sometimes based his diagnosis on its presence alone. It is often observed in obscure cases, in which there is no other auscultatory sign, and perhaps no impulse; and it differentiates such cases absolutely from those of solid tumor, which they closely resemble. For the production of the sign it is necessary that the aortic valves be competent, or nearly so.

Auscultatory evidence of murmur is of little importance in aneurism, unless the sound be heard over the spinous region behind, where it becomes of the greatest diagnostic value. Fixed pain in the back in the aortic region should always arouse suspicion.

The laryngoscope is sometimes a great aid to diagnosis, but its use will sometimes produce distressing laryngeal spasm.

The most rational and scientific treatment of sacculated aneurisms is that recommended by Tuffnell; consisting of absolute rest, with very restricted

food and fluid. It is, however, very severe. It is best adapted to—1, abdominal aneurisms; 2, cases in which a small sac is pressing upon nerves or tubes; 3, larger aneurisms threatening to penetrate the parietes. In general, the more sacculated the aneurism and the more widely separated from the aortic valves, the better suited is it for this plan of treatment.

The author has also largely employed iodide of potash in full doses, and believes that he has seen it effect good in the first stages of Tufnell's treatment.

Ligature of the carotid artery is only open for consideration in aneurism of the first or second portion of the arch, and so placed that the blood current through it is influenced to some degree by that through the carotid on one or the other side. Medical means should always be tried first.

Powell is opposed to galvano-puncture and to the introduction into the aneurism of foreign substances, such as iron wire or horsehair. He thinks the methods are wrong in principle, and also not without danger.

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#### GASTRIC DIGESTION IN HEART DISEASES.

In an article abstracted in this journal some time ago, Hufner took the ground, as the result of his own observations, that in all cardiac diseases, whether of the muscle or of the valves, the resulting passive congestion weakened or even abolished the ability of the stomach to produce acid. In these studies he employed the test-meal of Leube, which consists of a large quantity of meat, and removed some of the contents of the stomach after two hours and again after six hours. As the number of cases on which the experiments were made was small, ADLER and STERN (*Berliner klin. Wochenschrift*, 1889, No. 49, 1060) have conducted a series of investigations on the same subject. For this purpose they chose 20 typical cases of heart disease, in most of which the examination of the gastric contents was made several times. Each patient received the trial-breakfast of Ewald, consisting of 35 grammes of bread and a glass of water, and this was removed by the sound after one hour. Congo paper and the Günzburg reaction were employed to determine the presence of free hydrochloric acid, the latter being looked upon as decisive. The presence of lactic acid was determined by Uffelmann's reagent. Whenever the quantity of the gastric contents was large enough, the total acidity was determined by neutralization with a normal soda solution. The determination of the peptic strength was not considered important, since this always goes hand-in-hand with the presence of free hydrochloric acid. In about half of the cases the motor sufficiency of the stomach was tested by Ewald's salol method.

The authors give a tabular arrangement of the results obtained, showing that 16 of the 20 cases always had free acid. These results are directly contradictory to those of Hufner. This difference is to be explained on the ground that the time at which the color reaction can be obtained depends largely on the quantity of food ingested at the trial-meal; for it is evident that the albuminous elements of the food must first enter into their combinations with hydrochloric acid before free acid can be found in the contents of the stomach. The length of time required after the abundant Leube's meal is, therefore, three to six times as great as after the lighter Ewald's breakfast. Even, too, with like amounts of food, there may be, in

different healthy individuals, a difference in the rapidity with which the acid appears in the stomach, although, perhaps, the total amount secreted is the same. In order to still more carefully investigate the matter, the authors followed Huffer's plan exactly in 13 of the 20 cases of heart disease, and in 10 individuals with healthy stomachs. It was found that in the majority of them no free acid could be detected after two hours, but that it was present after four to five hours.

The authors, therefore, reach the conclusion that the results obtained from the examination of the gastric contents of patients with heart disease do not differ essentially from those obtained in the case of persons with healthy stomachs. Any subjective complaints referred to the stomach in these patients are probably to be referred to some central cause rather than to any disturbance of the gastric secretion.

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## SURGERY.

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UNDER THE CHARGE OF

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### SURGERY OF INFANCY AND CHILDHOOD.

The *British Medical Journal* (January 11, 1890) condenses as follows the exceedingly interesting Lettsomian lecture on the above subject recently delivered by MR. EDMUND OWEN. Beginning with the treatment of enlarged glands of the neck, he remarked that the presence of branching scars implied a blame either of the parents for not seeking advice in good time, or of the medical attendant for not availing himself of the means at his disposal to effect a cure without waiting for suppuration and consequent loss of tissue. He urged that instead of painting the skin over the glands with iodine or iodide of lead, the duty of the surgeon was to remove the enlarged glands without loss of time and before the patient had been exposed to the risk of the adjacent glands becoming enlarged and the organism exposed to the danger of septic absorption.

He then took up the question of causation, and pointed to the pharynx and tonsils as being likely sites for the entrance of septic poisons into the system. After alluding to the advantages attending constitutional treatment, change of air, etc., in enlargement of the glands for which no existing cause could be made out, the lecturer cautioned his listeners that perfect success could not be guaranteed in every case, or even in most cases, as a result of a first and single operation; but he claimed, however, that the removal of as much as possible of the diseased tissue was always attended with marked benefit to the patient's general health and a period of arrest, if nothing more, in the further progress of the malady. He then proceeded to describe the technique of the operation: He makes an incision along the anterior border of the

sterno-mastoid, over the tumor, of sufficient size to allow of the necessary manipulations, extending through the skin and down to the deep fascia, completing the laying bare of the glands by means of a steel director and forceps. Vessels are torn through with the forceps so as to prevent unnecessary hemorrhage, until the only connections of the gland are the lymphatic vessels above and below. The enlarged glands are then removed without difficulty, the cavity which remains being washed out with a mercurial solution and dried, the edges being brought together by means of sterilized horsehair sutures, and a small drainage-tube inserted.

To prevent any scars as the result of the sutures, these are removed not later than the second or third day. A strip of moist protective is placed over the wound, surmounted by a pad of cotton-wool, and the patient is placed in bed, the head and neck being steadied with sandbags and perfect immobility maintained. The next day the dressing is removed, and the drainage-tube and possibly the sutures removed, the edges being approximated by strips of waterproof strapping. The child is kept recumbent as long as possible, and when allowed to get up the neck is kept at rest by means of a stock of thick buckram covered with linen.

If, on making the incision, a suppurating cavity is found, the lecturer advocated laying the cavity well open, cleaning it out thoroughly, and making due provision for drainage.

In a few cases it has been found necessary to divide the attachment of the sterno-mastoid muscle in order effectually to deal with the enlargements beneath it. He insisted upon the fact that the progress effected in the surgical treatment of enlarged glands in this situation was mainly due to Mr. Pridgin Teale.

The lecturer narrated a case in which he had operated upon a child for a sarcomatous gland of the neck, and pointed out that in certain cases no treatment short of extensive operation could possibly prove of avail, and although the shock attending such an operation might be sufficient of itself to determine a fatal result, yet, as the alternative was inevitable death, he urged that the most serious risk should unhesitatingly be accepted, and the operation undertaken.

The lecturer passed on to discuss congenital cystic hygromata. He was of the opinion that they were best left alone, or, at the most, tapped, as they rarely caused serious symptoms, and proved very troublesome things to deal with if operated upon. He mentioned that although he had seen dozens of these dilated lymph spaces in infants and children, he had never met with them past the age of puberty. He inferred, therefore, that absorption invariably took place, preceded or not by inflammation.

He showed drawings and photographs of several cases of this kind illustrating their principal clinical features. He pointed out that the tumor of hygroma was altogether different from "hydrocele of the neck," due to non-closure of one of the branchial clefts with subsequent distention of the cavity. Thus created, it differed in having a definite rounded contour, and of consisting of a single cyst, which, on evacuation, left the neck its normal shape.

Such tumors were, he said, easily cured by incision and drainage. He concluded by alluding to the experiments of Horsley and others bearing on the effects of the removal of the thyroid gland in connection with cases of

sporadic cretinism, and urged that in these days of active, restless, and aggressive surgery control experiments upon living animals were not only justifiable, but necessary.

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#### THE ANTISEPTIC VALUE OF IODOFORM.

MR. A. ERNEST MAYLARD (*The Annals of Surgery*, January, 1890) reports two careful series of experiments undertaken with the object of corroborating or overturning the results arrived at by Korsing and Heyer. The first series were with anthrax spores and anthrax bacilli, and showed that the effect of adding iodoform to the cultures was to retard growth but not to prevent it, as in all cases rapid and continuous development sooner or later took place. In these experiments with anthrax bacilli his results confirmed those previously arrived at by Neisser and Buchner. The experiments with micrococcus prodigiosus show also that the presence of iodoform in the cultures has a retarding effect, and further, that this retardation may in many cases be due to the purely mechanical effect of the iodoform separating the microbe from its soil. Especially would this seem to be the case where iodoform has been previously dusted upon the surface of the medium which is to have implanted upon it the microbe.

In no case was growth entirely inhibited. The experiments with staphylococcus pyogenes aureus showed that the addition of iodoform, either to the microbes themselves, or to the soil upon which they were to be implanted, had the effect of retarding growth; but in no case did the microbes appear to be deleteriously affected. These experiments with staphylococcus pyogenes aureus do not agree in their results with those obtained by Neisser, who states that in his experiments with this microbe iodoform in no way affected its growth.

The second series of experiments were made with pus from acute abscesses and from non-tuberculous ulcerating surfaces. These experiments would seem to prove that under certain conditions iodoform has a germicidal effect upon pyogenic microbes, and no influence upon one putrefactive microbe—bacterium termo; that the only conditions which allow of this effect are the existence in large excess of iodoform or the presence in comparatively small numbers of the microbes. Where the microbes are in abundance, some retarding influence appears to be exercised by iodoform upon their growth, and even some diminution in the numbers which subsequently develop; but if the number present be so large that the pus may approach to the condition resembling "pus cultivation" of the microbe, then the experiment resembles those of the first series and the result the same—i. e., no germicidal effect is produced.

The general result, then, of this second series of experiments is to show that iodoform has some distinctive power, and that its supposed or acknowledged value in the wards is borne out by experiments in the laboratory. It may fairly be assumed that where iodoform is added to a wound it will be largely in excess of any microbes present, and therefore precisely in the position in which the experiments seem to indicate its aseptic power lies. Indeed, it is quite probable that such conditions as existed in the first series of experiments are rarely found to exist naturally; that is to say, no open

wound is ever in the position of having anything comparable to a pure cultivation of microbes upon its surface. So that, practically, iodoform, when used clinically, is always applied largely in excess of existing microbes, and therefore capable of exercising advantageously its antiseptic properties.

Mr. Maylard believes that his experiments prove that iodoform has a distinct effect upon the microbes themselves, but such effect is only produced when the drug is largely in excess of the organisms. Surgeons who use iodoform with any real faith in its antiseptic properties do so in large quantities, as it is only the proper use of the drug which brings about the good results that occur.

As compared with many other much more powerful antiseptics, the special value of iodoform must rest upon its prolonged action. Solutions are absorbed or carried away by the discharge, whereas iodoform remains as an almost permanent application. So that it is not infrequent to find, on the removal of a dressing some weeks after its original application, the iodoform still on the wound, and as active—if the pungency of the odor may be accepted as a criterion of the continuance of its antiseptic power—as when first used.

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#### PRIMARY SARCOMA OF THE TONSIL.

DR. J. WILLIAM WHITE (*University Medical Magazine*, January, 1890) reports the case of a man, fifty-five years of age, with a large cauliflower excrescence nearly filling the pharynx and arising from the right tonsil. It was giving rise to considerable difficulty in swallowing, and was producing a moderate degree of pain by pressure. Operation was advised and consented to, and was performed as follows: The patient being etherized, a preliminary laryngotomy was made, the laryngeal tube was put in place, and the etherization continued through it; the pharynx was plugged tightly with strips of iodoform gauze; the cheek was split from the corner of the mouth to the anterior edge of the masseter muscle, and the growth enucleated by means of catch-forceps and the finger. The pharynx having been thoroughly cleaned out and a portion of the anterior half arch, which had been infiltrated, having been removed with the scissors, the wound in the cheek was united by means of harelip pins, and the packing removed from the pharynx. The patient made a rapid and uninterrupted recovery. The laryngeal tube was taken out the following day. His temperature never reached 100°. The wound in the cheek at the end of three weeks—the time of discharge—was barely perceptible, and the patient went home apparently cured.

Growths of the tonsil of this character are rare, except as a secondary result of sarcomatous disease elsewhere. It is also rare to see such patients before there is any infiltration of surrounding structures or any glandular involvement, although, of course, the latter complication is longer in making its appearance in cases of sarcoma than in other forms of malignant disease.

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#### EXTIRPATION OF THE ISTHMUS OF THE THYROID IN GOITRE.

JULIUS WOLFF (*Berliner klinische Wochenschrift*, November 14, 1889) is of the opinion that a reciprocal relation exists between the growth of goitre and the degree of compression of the windpipe. The goitre produces stenosis of

the trachea, and this again causes a swelling of the tumor. It is therefore sufficient in an operation for goitre to free one aspect of the trachea and remove just so much of the goitre that the remainder cannot lie directly on the trachea. On this principle Wolff has operated in two cases, both of which were successful. In one case the goitre produced great difficulty in respiration. A portion (one and one-fifth inches wide) was removed from the middle of the right half of the goitre, October, 1888. In March, 1890, nothing was to be seen of the left half of the goitre; on the right there was still a swelling as large as a walnut, although directly after the operation this portion of the goitre had been the size of an apple. The disturbance of respiration had disappeared. On the right side paresis of the recurrent laryngeal had existed before the operation, and on the left side there had been considerable incurvation of the trachea: both of these symptoms were considerably improved.

#### SYMPTOMS AND CONDITIONS WHICH JUSTIFY NEPHRO-LITHOTOMY.

MR. W. H. A. JACOBSON, under the above head considers (*The British Medical Journal*, January 14, 1890) in considerable detail the following symptoms: 1. Continued hematuria, or passage of blood and pus. 2. Pain or tenderness in the loin or elsewhere. 3. Points connected with the previous history—for example, family history, habitat, habits, lithiasis, oxaluria, passage of previous stones, renal colic. 4. Frequency of micturition. 5. Absence of any condition in the rest of the urino-genital tract to explain the symptoms (Morris). 6. Failure of previous treatment.

The chief conditions simulating renal calculus he believes to be: (1) lithiasis and, to a less degree, oxaluria; (2) tubercular kidney; (3) pyelitis, not tubercular; (4) movable and (5) aching kidney, especially if associated with (6) neuralgic conditions; (7) disease in organs contiguous to the kidney; (8) disease of lumbar spine; (9) interstitial shrinking nephritis; (10) malignant disease of the kidney, especially of its pelvis, and malignant disease around last dorsal nerve.

The most important practical points in the performance of nephro-lithotomy he sums up as follows:

1. To count the ribs. That this is not an unimportant detail is proved by the fact that Professor Dumreicher, of Vienna, accidentally opened the pleural cavity in an attempt to remove a pyelo-nephrotic calculous kidney. Post-mortem the last rib was found to be rudimentary, and the pleura projected a good deal below the lower edge of the eleventh rib.

2. To make a sufficiently free incision, especially in a stout patient and a deep loin. Additional room may be gained by converting the usual lumbar incision into a T-shaped one, or by making use of Koenig's incision, in which the muscles are cut through as far as the rectus, and the peritoneum pushed forward. A small stone in a kidney will always be liable to be overlooked, but a surgeon does not give his patient or himself a fair chance who is content with exposing the kidney through a limited incision, and then trusting to punctures with a needle.

3. To pack away with sponges the colon, which is often troublesomely distended with flatus in these cases.

4. If the stone cannot be felt either in the pelvis or after palpation of the posterior and anterior surfaces of the kidney, this should be drawn up and out of the wound as far as possible and again examined, a careful watch being kept upon the pulse.

5. In puncturing the kidney, to try, as far as possible, to open the calyces systematically.

6. If palpation and acupuncture fail to find a stone, the kidney should be carefully opened and sounded. I will recur to the subject of hemorrhage shortly, and take first the best site of opening the kidney. Hitherto in five doubtful cases I have incised near the pelvis, as the viscus is thinner there, and as the surgeon can better reach the calyces.

7. Hemorrhage from an incision into the kidney is certainly arrested by firm, careful plugging with strips of sal alembroth gauze. On the five occasions on which I have used this plan I have removed the strips the next day with the aid of a few minutes' anæsthetic—gas sufficing for this. It is said that this plugging may cause vomiting. This did not occur in any of my cases. It ceases on the removal of the plugs. Care must be taken that the plugging is thoroughly done. If inadequate, it will have to be repeated in a few hours—perhaps more than once—thus leading to exhaustion and setting up cellulitis, which may of itself be fatal, owing to the important relations of the kidney.

8. Sources of difficulty in removing the stone. The chief of these are: (1) A very mobile kidney, which gets away deep in the wound; (2) a stone situated on the anterior surface and near the entrance of the vessels; (3) a small stone in a sacculated kidney, the stone falling into one of the sacculi, and thus being hard to find.

9. Multiple calculus in a suppurating damaged kidney. If the question of nephrectomy arise this step should, as a rule, be deferred, and the kidney thoroughly drained, for (1) additional shock and loss of blood will be avoided. (2) The condition of the opposite kidney, very possibly calculous also, will be made clearer by waiting. (3) The bulk of the kidney will be lessened by drainage. (4) Though a source of discomfort (if an open sinus persist) it may still do some and important work.

10. If the kidney has been much disturbed, it should be stitched *in situ*.

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#### LUMBAR VERSUS ILIAC COLOTOMY.

MR. THOMAS BRYANT (*The Lancet*, December 14, 1889) sums up in the following series of propositions his views as to the advantages of lumbar over iliac colotomy:

1. For the iliac operation to be a success, the large bowel should not be loaded with feces, the abdomen be by no means tense, and the symptoms of obstruction far from urgent; since under opposite conditions (such as those too commonly met with) its supposed advantages would hardly be demonstrated. The searching for the bowel would, moreover, be a serious difficulty; the free manipulation, extrusion, or excision of the bowel which is advised would be unsafe, even if practicable, and the necessity of having to open the bowel upon its exposure would, when called for, add to the dangers of the measure. The iliac operation, consequently, would appear to be applicable to



only a small class of cases. If, then, it can be said that iliac colotomy is an easier operation than the lumbar, when the large bowel is empty, the abdomen flaccid, and the symptoms of obstruction unpronounced, it can without hesitation be asserted that with a distended abdomen and colon and urgent symptoms the lumbar operation is the simpler of the two.

2. To search for the colon in iliac colotomy performed upon a patient with an undistended abdomen and free from all urgent symptoms may neither be difficult nor dangerous; but with the opposite condition, in which the bowel is damaged above the immediate seat of disease from prolonged obstruction, danger must exist, and such a danger must be added to that which appertains to the peritoneal wound. In lumbar colotomy neither of these dangers has to be met; such searching for, extrusion, and dragging outward of the colon as is considered to be essential in the iliac operation is never requisite, since the spur which is considered to be so essential to guard against the passage of feces past the artificial opening in the iliac method can in the lumbar be obtained by far simpler means.

3. The prolapse of the bowel at the artificial opening which has been adduced as an objection against lumbar colotomy does not rightly or of necessity belong to it. To judge by Mr. Bryant's experience, it is imaginary. In the iliac operation the objection is admitted, and sought to be remedied by an operative measure which is in itself of far greater magnitude than any lumbar colotomy he has ever done or seen.

4. The fear of an abnormality of the colon rendering the operation of lumbar colotomy a failure is practically groundless.

5. The greater convenience of the iliac over the lumbar wound for toilet purposes may at first sight seem plausible, but this apparent advantage is more than counterbalanced by the greater difficulty that exists in keeping any dressing or compress in position over the anterior opening to prevent the escape of the intestinal contents than is ever experienced in the lumbar.

6. The final conclusion is, therefore, clear that iliac colotomy is not yet proved to be superior to the lumbar operation.

In doubtful cases, in which an exploratory incision is required for diagnostic purposes, it may be useful, but such cases are very few; in all others, lumbar colotomy has advantages which stamp it as the better measure. The single advantage that he can see in the adoption of the iliac method is that the question of operative interference will have to be taken into account at a far earlier period of the patient's trouble than it has hitherto been the custom to consider the propriety of the lumbar operation; if so, we may soon see the valuable operation of lumbar colotomy take its right place in the practice of surgery, and good may come out of a fashion which has certainly not been a universal success.

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#### THE REMOVAL OF AN ENORMOUS ENCYSTED VESICAL CALCULUS.

DR. J. WILLIAM WHITE (*The Annals of Surgery*, January, 1890) reports the successful removal, from a man fifty-five years of age, of an encysted calculus weighing 4550 grains, and gives a brief review of the histories of similar cases, showing that very few stones as large have ever been successfully extracted. The chief points of interest in the case seem to be:

1. The absence of fatal kidney disease in a case of such long standing, and in the presence of such an extreme source of ureteral obstruction, frequent urination, etc.

2. The encysted condition of the calculus.

3. Its unusual size and weight.

Many cases have been recorded in which enormous calculi were found after death in the bladders of patients who died from intercurrent disease, or from conditions not directly involving or dependent upon the urinary tract. In the majority of instances, however, it is probable that when a stone attains a weight of more than two or three ounces, and is carried for any length of time, it produces a condition of the bladder and kidneys which, if not fatal in itself, strongly contra-indicates operative interference. The second point alluded to is the incarceration of the stone by means of such firmly organized lymph and by such a projection of the mucous membrane around about it, that it practically lay in a cavity of its own, communicating with the bladder by means of the aperture through which a portion of its convex surface protruded. The mode of formation of these cysts containing calculi is variable. In the majority of patients of the age of this one it has always seemed probable that the condition was brought about primarily by enlargement of the prostate, causing vesical hypertrophy with distention, and with the protrusion of the mucous membrane between the fibres of the detrusor, which gives rise to the well-known "sacculated bladder" of old people.

Dr. White makes the following remarks as to the diagnosis and operative treatment of such a calculus: A stone of this size and shape, freely movable in the bladder, could undoubtedly be seized by the lithotrite and measured in its small diameter, but it is hardly probable that it would be caught in the direction of its length in the one examination which it is customary to make for the purpose of measurement before deciding upon the particular operation to be performed. If the bladder was much contracted, it could not be grasped in its long diameter at all. The existence of a cyst-wall nearly covering it, greatly reducing the area over which the characteristic click of the searcher is obtained, preventing the lithotrite from seizing the stone with any firmness, and rendering it almost immobile, of course adds greatly to the difficulty of diagnosis. Bimanual examination, with a finger in the rectum and another over the hypogastrium, might be of use in persons with very attenuated abdominal walls; but even this would scarcely convey an accurate conception of the dimensions of the calculus. It is probable that the true size of such calculi will generally be discovered in the future, as in the past, during the performance of the operation intended for their removal.

As to the choice of that operation there can scarcely be two opinions—suprapubic cystotomy being so evidently the only available method, and the one to be employed at once when, as in this instance, the character of the stone is disclosed during the attempt at litholapaxy. It would, perhaps, be more useful to consider the duty of the surgeon who, having opened the perineum by either the median or lateral section, finds that he is dealing with a calculus of this description. Under these circumstances, the abandonment of the perineal route being imperative, the high operation should be performed, either at once, if the patient is in good condition and well fitted

to bear the shock, or, if that is thought inadvisable, as soon as the perineal wound has fairly well granulated, the patient then having the benefit of the drainage by that route without the danger of septic absorption.

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#### OSTEITIS DEFORMANS.

DR. GEORGES THIBIERGE (*Archives Générales de Médecine*, January, 1890) in the course of an elaborate article on Paget's osteitis deformans, considers carefully the various theories as to the etiology of this disease and its relation to similar bone affections. He concludes that the essential cause of osteitis deformans is quite unknown, but its clinical history demonstrates that it is a disease of the osseous system, or rather a general disease, arising from a general nutritive disorder of indeterminate origin. In spite of this lack of accurate knowledge of the cause and intimate nature of the anatomical changes, the clinical characters of the disease are sufficient proof that it constitutes a distinct and individual type. This is demonstrated not only by the peculiar and constant reappearance of the lesions, and by the extraordinary deformity of the bones thus attacked, but also by the regular and progressive course of the symptoms, and, above all, by the remarkable frequency of the final occurrence of malignant tumors: all these facts justify us in considering it to constitute a special pathological type, a true morbid entity. Osteitis deformans should then, according to Dr. Thibierge, be classified as distinct from other affections of the osseous system. Although it may be impossible to be more definite while its essential nature is as yet undetermined, it is right not to place it in the heteroclitous group to which has been given the name "multiple hyperostoses," a name which describes a symptom, and not a disease.

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#### MITRAL STENOSIS AS A RESULT OF FRACTURE OF THE STERNUM.

RITTER (*Centralblatt für Chirurgie*, No. 52, 1889) reports the case of a workman, thirty-four years old, who, in February, 1889, was hit in the breast by a piece of wood, which caused a fracture of the sternum. During his stay in the hospital there was no acceleration of the pulse, and on his discharge, five weeks after, nothing abnormal was found with the heart. In July of the same year the man reappeared, showing a marked angular inflexion of the sternum in the region of the insertion of the fourth rib; the ensiform process was directed to the right and lay under the curve of the ribs. The heart extended upward to the upper edge of the fifth rib; toward the left it reached out to the parasternal line; toward the right, it extended a finger's breadth beyond the edge of the sternum; underneath, to the edge of the seventh rib. There were symptoms of mitral stenosis, which were evidently produced by this displacement of the heart, originating in the injury.

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#### BLOOD TUMORS OF BONE.

MR. EDWARD ROUGHTON (*The Lancet*, December 14, 1889) recently read a paper before the Royal Medical and Chirurgical Society on the angeiomata and angeio-sarcomata of bone. His object was to elucidate the nature of

those tumors which were occasionally found in the interior of bones, and which on dissection were found to consist almost entirely of blood. These tumors had hitherto been considered to be always of a malignant nature. It was shown that, although some (perhaps most) of them were malignant, some were only semi-malignant, and others quite innocent in nature. This fact was illustrated by the following series of cases arranged in order of malignancy: 1. Max Oberst's case, a highly malignant endosteal sarcoma. 2. Dupuytren's case, arrested for seven years by tying the main artery of the limb. 3. Roux's case, permanently cured by tying the main artery. 4. Lagout's case, similar to the preceding. 5. The case of L. C. (detailed in the paper), in which the growth was arrested by simple incision. 6. MacDonnall's case, cured by the pressure of an elastic stocking. It was argued that these tumors consisted essentially of bloodvessels which, being imperfectly developed, were unable to contain blood, and so burst and destroyed the tissue in which they were contained. The author thought that these bloodvessels were developed from the myeloid cells of red bone-marrow, and that the more embryonic they were the more malignant was the tumor in which they were situated. In the innocent blood-tumor of bone, the vessels were more highly developed, but still too weak to contain blood.

When the vessels attained sufficient maturity to admit of no extravasation, the tumor ceased to have the characters of a blood-tumor, and was, in fact, a pure angioma. Such tumors, although more common in other parts, had been several times met with in bones. With regard to the treatment of these tumors, it was suggested that they should be incised, and if found to contain little or no solid matter, allowed to granulate up. If after incision the tumor continued to grow, free removal of the diseased part should be practised.

In the discussion which followed, Dr. Maguire said that he had examined several cases of malignant tumor of bone, and three of these presented appearances of extreme vascularity and pulsation—so much so that they might be mistaken for aneurism. He had been able to trace the development of sarcomatous tissue from the muscle fibre of the arterial wall. The more malignant the tumor the more rapidly would it become vascular, and the more likely were the vessels to give way. The fact that sarcomatous tissue was often found only at the edge of the blood-tumor showed how difficult the diagnosis might be, and, therefore, it was unwise to trust to the information gained from a simple incision into these growths. The tumors were not confined to the endosteum, for one case he had observed was an extremely malignant instance of periosteal sarcoma which recurred later in the viscera. Mr. Holmes differed from the last speaker as to the value of incision, for he recommended cutting into the tumor, evacuating its contents, and then, if no obviously sarcomatous tissue were found, giving the patient the benefit of the doubt. The cases originally described by French writers as aneurism of bone, were really, he thought, cases of endosteal and periosteal sarcoma, and he did not know of any safe means of distinguishing between the two.

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#### THE GRAFTING OF BONE AFTER EXTENSIVE LOSS OF OSSEOUS TISSUE.

M. PONCET (*Révue de Chirurgie*, November, 1889) reports the case of a child suffering with osteomyelitis of the inferior extremity of the right tibia and

with tibio-tarsal arthritis. After an incision at the level of the joint, he found a denudation of the tibia, which extended to within two centimetres of the knee. It was found that the diaphysis of the tibia was changed into a vast sequestrum bathed in pus. The articular cartilages were destroyed, as well as the periosteum in its lower third. The loss of substance was so great that from the osteogenic power of the periosteum alone reproduction of bone could scarcely be hoped for. The cavity was therefore allowed to begin to granulate, and then after previous curetting it was filled with little fragments of bone taken from a kid. Little by little the flabby granulations covered them and finally caused their disappearance. Six months after, the formation of a bony mass was clearly felt. The child could finally walk long distances without fatigue, his right leg giving him the same support as the left one. There existed a shortening estimated at  $3\frac{1}{2}$  inches, the healthy tibia measuring  $14\frac{1}{2}$  inches, the renewed tibia 11 inches; it then suffered a shrinking of  $\frac{3}{4}$  of an inch, owing to the weight of the body, the patient having walked too soon; complete ankylosis of the tibia-tarsal joint resulted, but the foot being in good position the child can walk without limping—thanks to an orthopedic shoe. M. Poncet concludes that these fragmentary bony grafts can be of real service. Used in the midst of granulations, they play in some measure the rôle of rubble thrown in a concrete substance.

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#### THE LIGATION OF VARICOSE VEINS OF THE LEG.

DR. CHARLES PHELPS in an interesting paper (*The New York Medical Journal*, December 28, 1889) gives the following directions for the ligation of varicose veins of the lower extremities:

In the ligation of varicose veins, as in all other operations, antiseptic methods and precautions in preparing the limb, in operating, and in dressing should be scrupulously observed. If, however, by neglect of these, some suppuration occurs, he has not found it to do serious harm beyond the trouble it occasions in multiplying dressings and detaining the patient in bed. The distance between the ligatures should vary in accordance with the size and varicosity of the vein and its apparent or probable anastomoses. In long stretches of large but comparatively straight veins the intervals should not be greater than from one to two inches.

Where there are masses of dilated and convoluted veins forming a tumor, it is impossible to include it in the ligatures, and they must be applied all around it and as closely as possible to it, embracing every immergent and emergent vein that can be discovered. He uses a catgut suture taken directly from the juniper oil and as small in size as possible consistent with necessary strength. The ligatures should be carried by a straight needle, preferably the Keyes-Reverdin, immediately behind the vein, and the needle unthreaded and withdrawn. The needle is then carried immediately in front of the vein through the openings which it has previously made, and the end of the ligature caught up and brought back. The vein is thus subcutaneously included in the ligature, which is then tied and cut short, and, if the catgut is fine enough, the knot pushed back beneath the skin. If, however, the vein is larger, and coarser catgut has to be used, no trouble results from leaving the knot in the orifice of the wound; in fact, he prefers it.

After the dressings have been applied, the limb should be placed upon a posterior splint and the patient kept in bed for about ten days or two weeks, after which he should wear a roller bandage for two months. The number of ligatures necessary to be applied is a matter of absolute indifference. The patient will recover just as rapidly whether he has few or many.

He restricts the operation to :

1. Cases where this condition constitutes disability in physical examination—as for admission to the army or navy, or for appointment in a municipal department.
2. Cases where the size of the veins, the formation of venous tumor, or the attenuation of the coats or tegumentary coverings threaten hemorrhage.
3. Cases where chronic ulceration or eczema exists.
4. Cases where circulation has been so far impaired as to occasion swelling of the feet or loss of power in the limb.

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## O T O L O G Y.

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UNDER THE CHARGE OF

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### THE NATURE OF INFLUENZA, WITH SPECIAL REFERENCE TO THE AURAL SYMPTOMS.

DR. J. MICHAEL, of Hamburg (*Deutsche med. Wochenschrift*, Feb. 6, 1890), has described some features peculiar to the ear-diseases manifesting themselves in Germany in the recent epidemic of influenza. He divides them into two classes. The first comprises those which resemble ear-diseases which occur in any case of catarrh of the nasopharynx. The second group do not represent a condition following the disease, but are, in fact, the disease itself localized in the ear.

The conclusions are as follows :

1. The aural symptoms in influenza are subjectively and objectively the expression of an intense hyperæmia of the mucous membrane of the auditory apparatus.
2. The chief characteristic of the symptoms of influenza compared with those of other infectious diseases, in uncomplicated cases, consists in an intense hyperæmia of the organs attacked ; in fact, disproportionate to inflammations from other causes.
3. The hyperæmia is also the indirect cause of the complications observed : *first*, because in the weakened walls of the bloodvessels it tends to rupture and hemorrhage ; and *secondly*, because it lights up afresh an inflammation already healed or become chronic ; and *thirdly*, it renders the mucous membranes highly susceptible to the reception of other conveyers of infection.
4. The treatment should correspond with the demands of this theory.

5. The name "influenza," "grippe," may be applied to the recent pandemic, while the ordinary, regular epidemic bronchial catarrhs should be called epidemic catarrhs.

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#### THE CONNECTION BETWEEN EPIDEMIC INFLUENZA AND THE CATARRHAL AFFECTIONS OF THE EUSTACHIAN TUBE AND THE TYMPANIC CAVITY.

DR. LACOEARRET, of Salies-de-Béarn, has written an interesting article on the above-named subject (*Journal de Médecine de Bordeaux*, February 2, 1890). He states that from the time the influenza, or "la grippe," first appeared in Bordeaux acute and subacute catarrhal affections of the ear became more and more numerous. Tubal catarrh and inflammations of the middle ear are usually more numerous in the spring and autumn, rarely occurring in mid-winter, excepting as sequels to the eruptive fevers, etc., preceded by inflammation in the pharynx or of the nares. As the grippe is often accompanied by coryza, redness of the throat, and more or less naso-pharyngeal catarrh, it is easy to explain the presence of ear-diseases at a time of year when such maladies do not prevail usually to any great extent. Thus, between December 20, 1887, and January 28, 1888, four acute cases of ear-disease were reported in the clinic at Bordeaux. Between the same periods in 1888, 1889, six cases were reported, while within the same period in 1889-1890, there were thirty-two cases reported—i. e., during the presence of the epidemic of influenza. Similar statistics are offered by other cities in France.

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#### EXCISION OF THE MEMBRANA TYMPANI AND THE TWO LARGER AUDITORY OSSICLES FOR THE CURE OF CHRONIC OTORRHOEA.

ERNST WETZEL, in his inaugural dissertation (Halle, 1889), gives a review of twenty-eight cases of this operation, performed at the clinic in Halle. The indications are those given by Schwartze, in his treatise, viz., chronic purulency of the middle ear with caries of the auditory ossicles, or cholesteatoma in the drum cavity. By this operation some of the diseased tissue may be removed, and access given for more perfect treatment of diseased parts which may still be left. The attic is thus exposed to a more complete medication. In the aforesaid twenty-eight cases fourteen were accompanied by perforation in the membrana flaccida. Five times both ears were operated on. The result, in seven instances, was a complete cure of the suppuration, and in six instances a great improvement ensued. Whenever no improvement occurred there was reason to believe that a carious condition existed in the walls of the drum cavity, or in the mastoid cells. In such cases the mastoid process may demand trephining.

So far as concerned the hearing, in thirteen cases the operation was followed by an improvement in hearing. This varied in degree from a slight improvement to as much as hearing a whisper one metre from the ear; the latter being observed in four cases. The best result amounted to hearing a whisper three metres from the ear. In two instances the hearing was worse after the operation than before; in all the rest the hearing was unaffected by the operation. The operation, notwithstanding the use of antiseptic tampons in the canal was followed, in most of the cases, by purulent inflammation, which varied in duration. In two instances facial paralysis ensued on the operated

side, which finally disappeared; in one case, however, not for seven weeks. The date of these operations is not given in the notice we have read.—Blau, *Archiv für Ohrenheilkunde*, vol. xxix., December, 1889.

#### MOBILIZATION OF THE STIRRUP.

M. MOURE, of Bordeaux, and M. MIOT, of Paris, presented synopses of their labors on this subject at the Congress of Otology and Laryngology, Paris, September, 1889 (see *Annales des Maladies de l'Oreille*, November, 1889). The first-named investigator, after mentioning aurists who have employed this method of treatment of deafness, stated that it really had not come into use as a method of treatment until the previous year, after the investigations of Boucheron. Two classes of cases are named in which the results observed are absolutely different.

In dry, adhesive otitides mobilization improves the hearing, temporarily. But as the operation cannot cure the primary process, all the defects soon reappear. In some instances the subjective noises and the deafness increase after the operation. In the second group should be placed the cases of adhesion, consecutive to suppuration. The locality and extent of these adhesions, however, may be contra-indications for the mobilization. On the other hand, amelioration of the tinnitus and the hardness of hearing are often obtained by the operation, in which antiseptic precautions are indispensable.

M. Miot, of Paris, has also availed himself of the operation of mobilization of the stirrup. He agrees with Boucheron that the best time for operating is at the beginning of the ankylosis. He has performed the operation a number of times, and obtained improvement in seventy-four cases. It is indicated in cases of deafness consecutive to otitis media purulenta with persistence of a perforation in the membrana, not improvable by the artificial membrane. There may be added to this: 1. Cases of deafness without notable thickening of the membrana, with or without integrity of the cranial perception for the watch, and with or without tinnitus. 2. Cases of deafness with diminution of cranial perception, tinnitus, and dizziness. 3. Deafness with thickening or relaxation of the membrana, with diminution of cranial perception, tinnitus, and dizziness.

The operation is furthermore indicated in a certain number of cases in which the membrana is not perforated. It is contra-indicated in (1) all cases of persistent perforation of the membrana with suppression of cranial perception, without subjective noises; (2) in all cases of deafness essentially nervous, from labyrinth disease; (3) and in all cases of complete osseous ankylosis of the stirrup.

Miot's operation consists in making a long incision in the posterior half of the membrana, near the annulus tympanicus, which gives plenty of light in the drum cavity, and is likely to heal slowly when made at this point. He then does not break the chain of ossicles, nor does he use a hook, but a miniature hoe-like instrument, with which traction is made on the incudo-stapedial joint, while the patient perceives a boiling sound in his ear.

The results are: Improvement in bone perception and hearing—sometimes



not for several days however; and it is sometimes necessary to repeat the operation several times.

The author's conclusions are:

1. Mobilization of the stirrup is the most efficient method of combating deafness from ankylosis of the stapes. It should not be employed, however, until all methods of treating the chronic catarrh of the middle ear have been tried.

2. It is in no way dangerous for the patient, and is not followed by suppuration when vigorous antisepsis is followed out.

[While this operation is one step in the right direction—viz., in operating upon the ankylosed structures of the middle ear, we cannot agree with Boucheron that mobilization of the stirrup alone is "the operation of the future." Excision of the membrana and the two larger ossicles will permit a constant and natural mobilization of the stapes by the action of sound-waves upon it far more prolonged and efficient than a mere doubtful instrumental mobilization of the stapes by any method yet suggested.—ED.]

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#### DISEASES OF THE EAR IN DIABETES.

PROFESSOR KUHN, of Strassbourg, delivered a lecture on the above-named subject in the section of otology connected with the Naturalists' and Physicians' Association, held at Heidelberg, September 19, 1889. He alludes, in chronological order, to the prominent contributions to this subject of Griesinger (1859), Jordaô (1857), Toynbee (1860), Külz (1874), Roser (1880), Raynaud (1881), Frerichs (1884), Kirchner (1885), Schwabach (1887), and Moos (1888). The clinical symptoms depicted by many of these writers are, as follows. A violent otitis media acuta, with profuse suppuration, often accompanied with hemorrhage from the ear, and the onset of mastoid inflammation. Very often the surgeon is confronted by a true osteitis of the petrous bone, all parts of it being liable to the attack. Kuhn suggests for this process in those affected with diabetes the name of "otitis diabetica." In some instances the mastoid has been opened with success; in others the operation has not prevented the brain from being attacked, and the fatal termination of the disease. One author believes that the operation of opening the mastoid for relief of the inflammation and suppuration at that point is justifiable, because it offers the patient a possibility of recovery, while an expectant or conservative course will surely lead to his death.

He then gives an account of two cases of "otitis diabetica" in his own practice:

The first case occurred in a man fifty-four years old, who had been affected with diabetes one year. He was, also, a hard drinker of spirits. The ears had always been normal. Suddenly, when he was suffering from sore throat, he was attacked by otitis media on the right side, which, in two days, was followed by rupture of the drum membrane and a copious purulent discharge. Notwithstanding this the pain continued unabated. The hearing was entirely suspended by the third day, the tuning-fork being heard only when the handle was pressed firmly into the meatus. On the seventh day there was detected a superficial swelling in the skin of the mastoid, without special redness. The patient declined all rational treatment, and insisted that his

cure depended upon a journey into the country (he lived in Strassbourg.) He therefore went to the Black Forest. Two days after his arrival at his friend's house he was seized with a heavy chill, to which succeeded severe vomiting for several hours. The next day profuse hemorrhage from the ear occurred, lasting ten minutes, the blood being of a very dark color. The suppuration, which had been excessive up to this time, now ceased, and did not reappear. On the same day severe dizziness set in, so that the patient could neither walk nor stand. In the evening he was attacked with hæmoptysis, and decided to return to his home in a carriage, which he did. That same night he was attacked by two severe chills, and toward morning general convulsions appeared, the patient became comatose, and died a few hours later. The post-mortem examination revealed an enlargement of the tympanic and mastoid cavities, with entire destruction of all their normal contents. In the upper posterior wall of the cavum tympani there was a large perforation into the sigmoid sinus. In addition, the upper, meningeal covering of the superior petrosal sinus was perforated to the extent of two centimetres. The remaining portions of the pyramid were softened, and could be cut almost as easily as wax. The membrana tympani was greatly thickened, but the perforation in it could no longer be found. There was a recent purulent meningitis on the right side and at the base of the brain.

The second case, a man fifty years old, presented a suppuration in the right ear, which defied all rational means of treatment. The left ear had been the seat of suppuration twenty years previous, and had remained deaf ever since. Dr. Kuhn observed an odor resembling acetic acid in the breath of the patient, who had very bad teeth. An examination of the urine revealed five per cent. of sugar. There were several cases of deafness and diabetes mellitus in the patient's family. Anti-diabetic treatment had no effect on the suppuration of the ear and the deafness. Finally, a fresh attack of pain was experienced in the left ear, with a swelling over the mastoid and also a round, soft tumefaction in the auditory canal, two centimetres from the meatus. An incision in both of these swellings gave vent to yellow, thin pus. Discharge of pus continued free for some weeks, which, if temporarily stopped, caused pain in the ear and mastoid process. The quantity of sugar increased in the urine. A periostitis of the mastoid, in consequence of an otitis media, was fully established. It was supposed that here, too, a deeper condition of disease would be found, as in the previous case—*i. e.*, a "diabetic otitis," in which the entire apparatus of the middle ear, and especially the mastoid cells, would be involved. It was, therefore, deemed advisable to make a deep and wide incision in the skin and expose the mastoid, and then open the mastoid cavity. The condition of the patient's mind forbade this. An anti-diabetic treatment was kept up therefore for four weeks, with some improvement in the general condition of the patient. The ear continued unimproved. Suddenly the other ear became painful, and a similar process was established in it.

General treatment was continued for some weeks without any good effect. The proposition to open both mastoids was now entertained. An incision, four centimetres long, through the skin of both mastoids, exposed the bone. The latter was found smooth, and externally unaffected. The fistula from the meatus of each ear was connected with the outer surface of the mastoid. The hemorrhage from the cuts being excessive, and no disease in the bone

being found, it was decided not to open the mastoid cavity. In six weeks both wounds healed, as did also the fistulous openings in the auditory canal. The opening in the right membrana tympani healed; the hearing improved; the patient continued to manifest from 0.5 to 3 per cent. of sugar in his urine.

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## DISEASES OF THE LARYNX AND CONTIGUOUS STRUCTURES.

UNDER THE CHARGE OF

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### PROFESSOR BILLROTH'S OPERATIONS ON THE LARYNX.

DR. FRITZ SALZER reports (*Archiv für klinische Chirurgie*, Bd. xxxix. H. 2, 1889) eleven unpublished operations performed by Billroth between January 1, 1885, and June 30, 1889, and then presents a table of thirty-four operations performed between March 21, 1870, and May 19, 1889, with various comments and reflections which can hardly be suitably presented in abstract in the limited space at command.

The operations for carcinoma were as follows. There were five total extirpations. Of these, one patient died seven months after operation, with recurrence; one died five weeks after operation from a wound in the œsophagus; three died within the first week after operation. For nine years past Billroth has no longer practised total extirpation, having found that some portion of the larynx can be retained in every instance. There were six complicated resections. None of the patients died in consequence of the operation; but recurrence ensued in every instance. Two patients died five weeks after operation; one three months, and one four months after operation: while two were living eight months and two months respectively after operation, but with recurrence in both instances.

There were eight simple partial resections. Of these, two patients died one and six days after operation respectively; one died in one and three-quarters months with pleuritis; one died in one and a half years with topical recurrence; one died four years after operation, apparently from glandular metastases; one is living one year after operation, but with recurrence; and two are living without recurrence, a year, and three and a half years after operation.

There were ten laryngofissions. Of these, three patients died within the first ten days; in two, topical recurrence ensued within a month, rendering further operation necessary; in one case the carcinoma could not be extirpated and total extirpation was practised later; one patient died two and a half years after operation, with recurrence; one left the hospital well but had not been heard from since; one is living without recurrence eight years after operation; and one is without recurrence two months after operation.

The five operations for other diseases were as follows: One laryngofission for tuberculosis of the larynx diagnosticated after operation. The patient died in eight days of tuberculosis of the lungs and of the ileum. One laryngofission for cicatricial stenosis after a laryngotomy practised some six years previously. The wound healed by suppuration; cicatricial stenosis recurred; unilateral extirpation was practised; the patient recovered with permanently impaired glutition, that function having been perfect before the extirpation. One laryngofission for rhinoscleroma; recurrence. One laryngofission for extensive papillomata; recurrence, and endolaryngeal operation; whispering voice.

Several of these cases are made the subject of special comment. The selection of cases for operation and the choice of procedure are discussed. The method of operation and after-treatment recommended as the outcome of Billroth's experience is summed up as follows:

Narcosis with a mixture of chloroform, alcohol, and ether. High tracheotomy. Insertion of Trendelenburg's tampon. Laryngotomy. Splitting the larynx in the middle line from below upward with probe-pointed bistoury or with bone-scissors. Excision of the diseased tissues, or resection of portions of the larynx by freeing the structure from below upward. Thorough arrest of hemorrhage by ligature and by compression. Accurate tamponing of the wound with iodoformed gauze, kept in position from five to ten days. Simple, unfenestrated tracheal canula. Antiseptic dressing. Artificial feeding by the œsophageal tube when demanded by necessity. Withdrawal of the canula as soon as practicable after removal of the tampon of iodoformed gauze.

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#### LARGE HARD PAPILLOMA OF THE NASAL PASSAGE.

A unique case of extensive corneous warty growth of the upper portion of the nasal passages is described in detail and illustrated by DR. O. VON BÜNGNER, of Halle (*Archiv für klinische Chirurgie*, Bd. xxxix. H. 2, 1889). It was developed in a man sixty-three years of age, on the surface of a previous psoriasis of the mucous membrane of the septum narium, and in association with an ozæna which had existed since his puberty. The coincidence of these two conditions is regarded by Büngner as probable important factors in the production of the growth.

At eleven years of age the patient had a slight wound of the nose from the blow of a flail. In his twentieth year he was struck on the nose again by an unharnessed horse, both nasal bones being broken and slight obliquity of the organ remaining. His ozæna excepted, he remained well for thirty-two years, when complete occlusion of both sides of the nose gradually set in. Several fragments of tumor were removed from the septum on two occasions of six weeks' interval, but with only palliative effects. Complete eradication was attempted by external access, and the growth was then extirpated in several fragments, the combined weight of which was not less than nine drachms. The tumor occupied chiefly the upper portion of the cartilaginous and osseous septum, whence it extended to the roof of the nose and to the plate and to the cells of the ethmoid bone, into which it penetrated so deeply that the greatest care was necessary to avoid penetration into the cranial cavity. It

did not encroach upon the anterior wall of the nose nor upon the lateral walls. It had produced a large perforation of the septum. The mucous membrane of the septum was found to have undergone psoriasis, strips of which remained free between the dendritic attachments of the growth. The examination of the growth showed it to be a hard or corneous papilloma developed in the mucous membrane of a septum altered by ozæna and by psoriasis. The cylindrical and ciliated epithelium of the entire upper portion of the nasal passages were completely changed into squamous epithelium. The mucous membrane supported a covering of several layers of squamous epithelium slightly cornified superficially. The sub-epithelial tissue had the character of granulative tissue. No trace of the glands could be detected in the mucous membrane. For details the original article must be consulted.

After leaving the hospital the patient did well for four months, when recurrence took place on the right side, and a few electro-caustic procedures were practised unavailingly by his attending physicians. The recurrent growth eventually involved the left side of the root of the nose, and an external operation was practised sacrificing this portion of the structure. To repair this defect a flap had been prepared; but the patient changed doctors before the proper period for its attachment, and his new attendant cut the flap off, leaving him without a nose. A slight recurrence took place a month or so later, but was destroyed with scissors and incandescent heat. For seven months following this period there had been no further recurrence.

## OBSTETRICS.

### UNDER THE CHARGE OF

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### ANTISEPTICS IN THE HANDS OF NURSES AND MIDWIVES.

At a recent meeting of the Academy of Medicine of France, the question as to the propriety of placing antiseptics in the hands of nurses and midwives was brought up for discussion. The conclusion was reached that fixed rules should be given nurses regarding precautions which they are to take personally. In choice of antiseptics bichloride of mercury was selected in preference to carbolic acid, and powders containing sufficient bichloride to make antiseptic solutions when added to a quart of water, are authorized to be given to nurses for their use. Tartaric acid and red dye material were combined with the mercury to prevent poisoning and increase solubility. Creolin is rejected because of its unpleasant odor, and the length of time required to produce its effect — *Revue Générale de Clinique et de Thérapeutique*, No. 6, 1890.

## THE VALUE OF ACETIC ACID AS AN ANTISEPTIC IN OBSTETRICS.

SCHAEFFER (*Centralblatt für Gynäkologie*, No. 6, 1890), has reviewed the statements of Battlehner and Engelmann concerning the value of acetic acid as an antiseptic. His own conclusions are based upon experiments with pure cultures of septic bacteria, and he concludes that carbolic acid is fifteen times as efficient a destroyer of the spores of anthrax as is acetic acid, and over two hundred times as efficient an antiseptic as acetic acid in other poisonous germs. He would therefore not rely upon acetic acid in the treatment of puerperal cases.

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## CHANGES OCCURRING IN THE TUBES AND OVARIES DURING PREGNANCY AND THE PUERPERAL STATE.

THOMSON (*Zeitschrift für Geburtshülfe und Gynäkologie*, Band xviii. Heft 1) finds that the tubes undergo very appreciable changes during pregnancy and the puerperal state. During pregnancy the connective tissue is more freely supplied with blood, is more succulent, and increases slightly in thickness, and the muscular tissue of the tube hypertrophies as does the muscle of the uterus, but in less degree; during the puerperal state the muscle cells undergo a retrograde metamorphosis in the same manner in which the muscle cells of the uterus undergo involution. No appreciable change was observed in the structure of the ovaries during pregnancy or the puerperal state.

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## THE PROGNOSIS OF PREGNANCY OCCURRING AFTER CÆSAREAN SECTION.

TORGGLER (*Wiener Klinik*, 1890, Januar heft) has studied one hundred and seventy-one cases of Cæsarean section, to determine the prognosis in pregnancy occurring after Cæsarean section.

Liability to conception is not diminished by Cæsarean section, and patients in whom the silver wire suture has been employed enjoy the best of health subsequently.

The dangers attending pregnancy occurring after Cæsarean section and a birth accomplished by repeated Cæsarean section are not especially greater than in the first section. The most serious accidents are caused by adhesions between the uterus and tissues about it. These, however, occur less frequently after the use of the silver wire, than when silk or catgut is used for sutures.

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## A CASE OF AIR EMBOLISM FOLLOWING INTRA-UTERINE TAMPONING WITH IODOFORM GAUZE IN PLACENTA PRÆVIA.

VAVRA (*Centralblatt für Gynäkologie*, No. 1, 1890) reports a case of placenta prævia lateralis, in which the uterus was tamponed with iodoform gauze for post-partum hæmorrhage; after the insertion of a few strips of gauze, cyanosis suddenly came on and respiration ceased and death occurred. Post-mortem examination disclosed air in the veins of the broad ligaments, in both internal spermatic veins, in the inferior vena-cava, in the right side of the heart, and in the pulmonary artery; anæmia and pulmonary œdema were present. The embolism occurred during the insertion of the gauze.

### PLACENTA PRÆVIA LATERALIS WITH UNUSUAL TOUGHNESS OF THE MEMBRANES.

STAPFER (*L'Union Médicale*, No. 2, 1890) reports a case of placenta prævia lateralis in which it was impossible by the finger nails or by pressure to rupture the membranes. This led Stapfer to devise an instrument resembling a pair of forceps with a sheathed cutting edge. He is convinced of the inefficiency of the methods usually employed to rupture the membranes in dangerous cases where prompt rupture is a question of great importance.

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### THE BEST METHOD OF DELIVERING THE AFTER-COMING HEAD.

EISENHART (*Archiv für Gynäkologie*, Band xxxvi. Heft 2) believes the best method of delivering the after-coming head to be by inserting the longest finger of the left hand in the child's mouth, as far as the base of the tongue, the child being astride the forearm. With the right hand pressure is made downward and backward behind the symphysis pubis upon the head, the greater force being exerted by the right hand. In fifty cases so delivered at Munich the chances of delivering a living child were seven times better than by other methods; an equal advantage to the mother in freedom from laceration and successful recovery was also observed.

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### THE FORCEPS APPLIED TO THE BREECH.

TARNIER (*Le Mercredi Médical*, No. 4, 1890) has found the application of the forceps over the trochanters of the femora of especial advantage in delivering breech presentations. When applied in the bis-iliac diameter damage may be done to the child and the instrument will slip. Over the trochanter a firm grasp is obtained, and Olivier's series of experiments failed to show injury to the fœtus. Tarnier would apply forceps when it is impossible to bring down a foot by the introduction of the hand. He considers the forceps safer than the hook, as fracture of the femur is frequently caused by the latter. The fillet, or band of tape, may be used to advantage in some cases with the forceps. The axis-traction instrument is preferable.

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### THE TREATMENT OF RUPTURE OF THE UTERUS.

LEOPOLD (*Archiv für Gynäkologie*, Band xxxvi. Heft 2) reviews the recent writings of Veit, Piscoşek, and Winckel, on this subject, and from his experience and study concludes that the following is the best method of treatment:

The abdomen antiseptically cleaned, a vaginal douche and vaginal tampon of iodoform gauze; there should be ready sterilized or iodoform gauze cut in strips three finger-breadths wide and the length of the forearm, stimulants, ergotin solution, towels, hot water, and one quart of sterilized salt solution six-tenths per cent.; this should be injected subcutaneously, not by intravenous injection. The abdomen should be opened under light narcosis, the child gently removed through the rent in the uterus, the placenta is sought by following the cord and removed, and amniotic fluid and blood are carefully sponged with bits of gauze. The edges of the rent may be trimmed and

stitched together, which generally stops bleeding. When it is impossible to suture, a strip of gauze folded many times upon itself, to make a firm tampon, may be placed in the rent, one end brought out at the vulva, the other end remaining in the uterus; the uterus may be pressed firmly down into the pelvis, the edges of the rent in the peritoneum brought together, and gauze packed firmly about the uterus, the end being brought out at the lower end of the abdominal incision.

The Porro operation remains for those cases where other methods fail, and in this the gauze tampon is of use in preventing bleeding about the point of rupture. It is of the greatest importance in these cases that the source of the bleeding be treated as soon as possible; intra-abdominal hemorrhage is the rule, and may be severe.

Leopold adds the following cases: 1. Complete rupture on the right side of the uterus in a syphilitic patient caused by efforts at delivery; the breech escaped; perforation and cranioclasia; the edges of the rent brought together as well as possible, and iodoform gauze tampon introduced per vaginam, with a pressure bandage over the uterus. Saline solution subcutaneously; recovery.

2. Highly contracted rhachitic pelvis in a weak patient. Complete right-sided uterine rupture; subperitoneal hemorrhage extending to the kidneys; craniotomy; iodoform gauze tampon; injections; death in three hours in collapse. In this case Leopold ascribes death to the failure of the attending physician to diagnose the rupture, and the omission of laparotomy.

3. Complete rupture in contracted pelvis; head presenting; arm prolapsed; profuse hemorrhage; perforation and cranioclasia; tampon and injections; death on fourth day; profuse abdominal hemorrhage. Leopold cautions against version, but would perform embryotomy and cranioclasia.

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#### RUPTURE OF THE UTERUS COMPLICATED BY CARBOLIC ACID INTOXICATION.

GUSTAVE BRAUN (*Wiener klinische Wochenschrift*, No. 50, 1889) reports a case of ruptured uterus through delayed labor and excessive efforts at expulsion. Injections of 2 per cent. carbolic acid solution had been given by the midwife in attendance, and sufficient had escaped into the abdomen to cause carbolic acid intoxication severe enough to render an anæsthetic during laparotomy unnecessary. A large dead child was delivered through the abdominal incision, and a circular rent in the uterus on its anterior surface, 5.8 inches long, was found with a peritoneal tear and laceration of the tissue extending to one labium. Sublimate silk was used for suture, accompanied by the tampon. The patient rallied, but died of purulent peritonitis on the fourth day.

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#### CÆSAREAN SECTION FOR BONY TUMOR OF THE PELVIS.

KELLY (*Medical and Surgical Reporter*, No. 4, 1890) reports a successful Cæsarean section upon a multipara, in whom birth was impossible because of a large bony tumor springing from the sacrum and ilium of the right side. The patient's previous labors had been terminated by embryotomy. The pelvis was rhachitic, the antero-posterior diameter measuring externally seven



inches. After careful preparatory treatment, the Cæsarean section was performed after Säger's method. Bleeding was prevented by grasping the cervix with the hand, and the usual deep and superficial sutures were inserted. The duration of the operation was fifteen minutes. An uncomplicated recovery of mother and child followed. An occlusive dressing was used after the operation; the sutures were removed on the seventh day; the patient went home on the nineteenth day.

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#### TUBAL PREGNANCY TREATED BY INJECTION OF CHLORIDE OF ZINC.

SOTSCHAWA (*Med. Rundschau*, No. 1, 1890) reports a case of ectopic pregnancy at two months in which a tumor the size of an apple was found on the right side of the uterus, the usual symptoms of ectopic pregnancy were present; two injections of fifteen minims of a five per cent. solution of chloride of zinc were made into the tumor at intervals of six days; a discharge of mucus, pus, and decidual cells from the uterus followed; the tumor lessened in size to that of a normal tube, three weeks later normal menstruation occurred. This case is open to the criticism of a mistaken diagnosis in the absence of laparotomy.

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#### TWO CASES OF RUPTURED TUBAL PREGNANCY.

HAMILTON (*New York Medical Journal*, No. 6, 1890) reports two cases of tubal pregnancy successfully operated on after rupture. In one case rupture occurred during defecation; a deciduous cast of the uterus was expelled. Operation was made a month later, and a fœtus and appendages were washed out of the abdomen with a mass of clots. In the second operation the patient was in profound collapse. After operation sixteen ounces of warm saline fluid were transfused with good results. In both cases rapid operation, flushing the abdomen with hot water, and the use of the drainage tube were efficient—both patients recovering without fever.

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#### ECTOPIC GESTATION. THE TREATMENT OF TUBAL PREGNANCY BY INJECTIONS OF ZINC CHLORIDE.

SOTSCHAWA (*Medicinische Rundschau*, Russische, 1889, No. 1) reports a case presenting the clinical signs of tubal pregnancy, with tumor in the right side of the uterus of eight weeks. Two injections of fifteen minims of 5 per cent. solution of zinc chloride were made into the tumor, at intervals of six days. A mass of mucus, pus, and decidua was expelled from the os, and the tumor disappeared. Normal menstruation occurred three weeks later. The diagnosis in this case is not positive.

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#### SUBSEQUENT HISTORY OF EXTRA-UTERINE PREGNANCY TREATED BY ELECTRICITY.

BROTHERS (*American Journal of Obstetrics*, No. 2, 1890) has collected 50 cases of extra-uterine pregnancy treated by electricity, and 25 cases in which the patient's condition has been observed from one to four years after treatment. In the first series, a mortality of 10 per cent. resulted. In the second

series, 23 out of 25 were reported in good health. In two cases extra-uterine pregnancy had recurred. In 7 cases a small tumor or some alteration in the tissues remained. Brothers concludes that risk of rupturing the sac by electricity is very slight; suppuration has not occurred in any case operated upon before the third month; beyond this period electricity should not be employed; electro-puncture is to be condemned.

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#### THE TREATMENT OF MASTITIS WITH THE PLASTER-OF-PARIS BANDAGE.

MEISEL (*Bullet. Génér. de Thérap.*, No. 22, 1889), reports twelve cases of mastitis treated by the plaster-of-Paris bandage. After cleansing the breast thoroughly it is surrounded by gauze, an opening left over the nipple; the breast is enveloped by a gauze bandage dipped in plaster-of-Paris; a bandage upon the outside protects the dressing from injury. This treatment was employed where it was desirable to stop lactation, and in twenty-four hours after the application of the dressing hardness and swelling in the breast disappeared, and the milk ceased. The gauze placed next to the breast was antiseptic.

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#### THE TREATMENT OF POST-PARTUM HEMORRHAGE

KÜSTNER (*Deutsche med. Wochenschrift*, No. 1, 1890) regards post-partum hemorrhage as generally caused by improper management of labor. Death from this cause rarely occurs in good hands. Hemorrhage from the vagina and cervix may be immediately checked by closing the lacerated tissue by a stitch or by an antiseptic tampon. Uterine hemorrhage may be avoided by emptying the uterus slowly; the child's body should never be removed forcibly, but should be expelled by uterine contractions; traction should be made by forceps with the pains only. Rapid delivery of the placenta should be avoided; at least fifteen minutes should elapse before any effort is made, and then uterine contractions should be aided, not superseded, by pressure. Cornutin is thought the best preparation of ergot for use in these cases.

There remains a class of cases in which hemorrhage is not caused by failure of uterine contraction, as usually, but by rupture of an artery or atheromatous degeneration and rupture of the vessels at the placental site accompanying nephritis, in which the intra-uterine tampon is indicated. In cases occurring where the practitioner has no assistance the tampon may be easily, quickly, and safely applied in all cases of post-partum bleeding; iodoform gauze is the best material. Küstner reports eight cases successfully treated by this means.

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#### FETAL DEATH AND MATERNAL INFECTION CAUSED BY INFECTION OF THE AMNION.

HUE (*Archives de Tocologie*, No. 1, 1890) has recently observed the case of a multipara in whom no history of specific infection could be obtained. Shortly before labor she was taken with chills, followed by an eruption, accompanied by violent movements on the part of the foetus which gradually ceased. When labor began an excessively offensive discharge occurred,

and when the membranes ruptured the amniotic liquid was found decomposed, fetid, and exceedingly offensive. Delivery was accomplished by the forceps. The child was dead and showed symptoms of maceration. Post-partum hemorrhage followed, but was easily checked; the maternal decidua had become infected, however, and septic infection followed and death resulted. In the absence of a specific history the question as to how the amnion became infected is not readily answered.

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#### THE INFLUENCE OF MENSTRUATION UPON LACTATION.

SCHLICHTER (*Wiener klinische Wochenschrift*, No. 5, 1890) concludes from an extensive study on this subject that menstruation occurring later than six weeks after the birth of a child has no injurious effect upon the mother or child so far as nursing is concerned. Should menstruation or hemorrhage occur earlier than six weeks it may retard the development of the child. Dyspepsia, colic, and entero-colitis occurring in children nursing during menstruation are to be considered as coincident with, but not caused by menstruation. They should be treated as if they occurred at any other time, and the nurse should not be changed on that account.

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#### RESPIRATION IN PREMATURELY BORN CHILDREN.

GLOCKNER (*Centralblatt für Gynäkologie*, No. 1, 1890) reports three cases of prematurely born children, one at four months, one at fifteen weeks, the third at nineteen weeks, in whom respiratory movements were followed by marked increase in the vigor and frequency of the heart's action; the mouth was open in these cases during respiratory movements, these movements lasted a little over an hour; on post-mortem examination the lungs were not inflated, and sank when thrown into water; the stomach contained air, and there were also evidences of oxygenation of the blood in the heart. The conclusion is reached that the fœtus swallowed air, and that oxygenation of the blood in the gastric vessels resulted, which increased the vigor and frequency of the heart's action.

In a criticism upon Glockner's cases, Schultze admits the accuracy of Glockner's observations, but considers the amount of oxygen obtained by the fœtus in this manner to be too small to play any part in respiration. He would employ inflating the lungs and artificial respiration in cases of asphyxia where arterial and venous tension are nearly equal; where arterial and venous tension are unequal he considers his method of inflation of the lungs by swinging the child to be the most efficient. (*Centralblatt für Gynäkologie*, No. 6, 1890.)

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#### STERILIZED MILK.

ESCHERICH (*Münchener med. Wochenschrift*, No. 46, 1889) finds a convenient method of corking bottles in which milk is sterilized, to be by boring a small hole through the neck at such a height that it will be covered by the rubber nipple when applied. A rubber cork is used with a notch so cut that by turning it opposite the hole a small aperture is created, through which gas may escape in the first stages of sterilization. After the gas has escaped

the cork is turned again and the bottle made impervious. Heating for an hour in all has generally been employed. Malt extract may be mixed with milk and the whole sterilized. Milk may be sterilized in bulk in tin trays or bottles by means of steam, in Koch's sterilizer. If possible, not more than an hour should elapse between milking and sterilization of the milk. Hay bacteria are not always destroyed by sterilization, but the bacteria producing acids are destroyed. The practical value of sterilization is proven.

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## GYNECOLOGY.

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UNDER THE CHARGE OF

HENRY C. COE, M.D., M.R.C.S.,  
OF NEW YORK.

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### OBSERVATIONS ON THE ORIGIN OF OVARIAN CYSTS.

HENEAGE GIBBES (*Boston Medical and Surgical Journal*, January 30, 1890) discusses three causes of cystic disease of the ovaries, viz.: 1. Overgrowth of preëxisting tissue; 2. Degenerative changes, giving rise to cavities or cysts; 3. Simple distention of Graafian vesicles. The first mode of formation is by the overgrowth of epithelial cells, which are probably of embryonic origin. Cysts thus derived have a wall lined with these polyhedral, granular cells, which are frequently vacuolated. The cavity contains a coagulated material, which is structureless and gives a different reaction from either colloid matter or liquor folliculi. A comparison is instituted between these groups of cells and the condition described by Dr. Mary A. Dixon Jones as "endothelioma," the writer believing that they are identical and that there is no reason to believe that it resembles carcimona, either in its structure or in its progress.

The formation of cysts by degenerative processes is usually described as due to a colloid transformation of the stroma, but the homogeneous hyaline material into which the tissue is changed does not give the colloid reaction.

The third mode of origin is by the dilatation of ovisac, the wall of the cyst being constituted by the condensed stroma. The microscope throws no light upon the *causa ultima*.

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### STERILITY IN WOMAN.

OLIVER (*Liverpool Medico-Chirurgical Journal*, January, 1890) contributes a sensible article on this subject, in which he takes the position that there is too much unnecessary treatment of the female for the cure of sterility which is really due to the male. Gynecologists are too apt to infer that because a woman has been married for years, without impediment to the sexual act, and has never become pregnant, therefore there is some anatomical defect in her pelvic organs. "A semblance of brilliant results obtained by a too meddling interference may be paraded, but careful observation teaches us that the good which follows is invariably the outcome of an enforced sexual rest." There are many occult causes of unfruitfulness with which we are unacquainted, even when there are no apparent obstacles to conception. The

writer estimates that one woman out of every fifteen is sterile, hence the male percentage is much higher—one in six, according to Gross.

[We cannot sufficiently commend a writer who calls attention forcibly to the injustice which is done to unfruitful women not only by their husbands, but too often by gynecologists. There are many able specialists who, whenever they find a slight antelexion associated with sterility, at once jump at the conclusion that the latter is directly dependent upon the former, that it is unnecessary to seek further for a cause of the sterility, and that the only treatment is—divulsion and the introduction of a stem. This is all the more remarkable, because those same men would never think of making such a hasty deduction under any other circumstances. Statistics of numerous miraculous cures of sterility by any given method of overcoming a supposed cervical stenosis are not useful to the general profession if they lead them to make extravagant promises to their patients, which are only followed by bitter disappointment.—ED.]

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#### THE RESULTS OF THE REMOVAL OF DISEASED OVARIES AND TUBES.

IMLACH (*Ibid.*) has taken the precaution to obtain the after-history of many of his patients (of whom he has operated upon 142), in order to ascertain their subsequent condition. In forty-three cases of oöphoritis and salpingitis eighty per cent. were much improved in health and were free from pain, but menstruation (metrostaxis?) had entirely ceased in only sixty per cent. Eleven women from whom cystic ovaries had been removed were all in perfect health. Thirty-four patients who had been operated upon for ovarian abscess or pyosalpinx were greatly benefited, but twenty-five per cent. still complained of pain, and in forty per cent. menstruation was still regular. Of eighteen women who had hydrosalpinx, fourteen were cured, and four were in poor health.

Out of thirty-six cases of removal of the adnexa for the relief of hemorrhage from uterine fibroids, menstruation ceased in between sixty-five and seventy per cent. within a period of six months, and in the other cases it recurred normally. In only one instance did profuse hemorrhage continue. "In all cases in which pain was severe or disabling, it has been relieved." In some instances the writer believes that the diseased condition of the appendages (and they are, he says, invariably diseased) causes the rapid enlargement of the tumor, which quickly diminishes in size as soon as the stimulus to growth is removed. The removal of *healthy* ovaries and tubes in the case of large uterine tumors is of doubtful benefit; if any surgical interference is indicated, hysterectomy is preferable.

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#### MYOMOTOMY AND SPLENOTOMY IN THE SAME PATIENT.

BOLLICI (*Raccoglitori med.*; *Centralblatt für Gynäkologie*, October 26, 1889) reports the case of a woman, aged thirty-eight, upon whom he performed laparotomy for the relief of uterine hemorrhages due to the presence of a fibro-myoma in the anterior uterine wall. Nearly all of the uterus was removed with the tumor, the stump being treated according to the intraperitoneal method. A wandering spleen, weighing seven and one-half ounces, was removed at the same time, the patient making a good recovery.

## PARTIAL EXTIRPATION OF THE OVARIES AND TUBES.

MARTIN (*Sammlung klinische Vorträge*, No. 343) describes ten cases in which he removed only the diseased portions of ovaries, three of the patients subsequently conceiving. In seven cases he practised partial resection of the tubes. When the tube was buried in adhesions and its fimbriated end was occluded, he broke up the adhesions, opened the distal end, and, in order to prevent the formation of fresh adhesions, attached the tube to the corresponding ovary. He summarizes as follows: 1. The removal of circumscribed diseased portions of an ovary does not prejudice the patient's recovery. 2. The same applies to the resection of portions of diseased tubes. 3. In the seventeen cases reported no further morbid processes were set up in the tubes and ovaries thus treated. 4. Menstruation continues to be normal. 5. Patients in whom this operation has been performed are perfectly able to conceive.

## CREOLIN IN GYNECOLOGY.

CHIRON (*El. Prog. Gen.; Annales of Gynecology*, December, 1889) has made numerous experiments with this antiseptic, especially in the treatment of specific vesical inflammation. He used two and five per cent. solutions without causing pain or any toxic symptoms, while the trouble was speedily relieved. In gonorrhœal vaginitis and endometritis he used douches and applications of a five per cent. solution with marked benefit. Creolin gauze was found to be a good substitute for iodoform in tamponnade of the uterine cavity. Creolin, he concludes, seems to be particularly destructive to the gonococci.

## THE TREATMENT OF PYOSALPINX BY DRAINAGE INTO THE UTERUS.

GOTTSCHALK (*Deutsche Medizinalzeitung*, 1889, No. 13) describes this method of treatment, which is only applicable to cases in which the wall of the tube is still quite thick. The uterine cavity is dilated by means of tampons of iodoform gauze, which are replaced daily for several days, then are left *in situ* for three days, when the cervical canal is so distended that the finger can be readily introduced. In two instances the tubes were emptied spontaneously, which seems to prove that the *ostium uterinum* is also dilated by the tampon. If dilatation of the uterine cavity alone does not cause emptying of the tube, the endometrium may be curetted, or the tube may be compressed and its contents squeezed into the uterus.

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MAY, 1890.

A CASE OF FRACTURE OF THE TEMPORAL BONE, WITH  
REMARKS ON TREPHINING FOR FRACTURE  
OF THE BASE OF THE SKULL.

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THE object of reporting this case is to call attention to the advantage of drainage as an aid to the process of repair after fracture of the base. Until quite recently this grave lesion has been regarded as beyond the pale of surgical interference. The latest literature shows, however, that hospital surgeons are endeavoring to apply the principles of antiseptic surgery to this almost inaccessible region, and the recent advances in brain surgery encourage the hope that more attention will be paid to the lesions of the different fossæ of the skull and their contents, and that valuable suggestions may from time to time be forthcoming as to the management of the complications to which they give rise.

T. K. L., seventeen years of age, a tall and slender man, was riding in the saddle about dusk of the afternoon of October 20, 1889, and had separated from his companions, having ridden rapidly ahead of them when the accident occurred. According to the statement of a passer-by, he was observed turning a corner in the road at a moderate pace, when suddenly horse and rider were seen struggling in the dust. The horse soon regained his feet and ran away. It is supposed that as the corner was turned the horse shied suddenly, throwing the rider and falling upon him.

When the patient was approached he was found to be comatose and bleeding profusely from the nose and left ear; a narrow strip of brain substance was found upon the sleeve of his coat. The accident occurred about 6 P.M. On my arrival (about 10 P.M. the same evening) I found

the patient comatose with heavy breathing. There was, apparently, no paralysis of any kind; the pupils were normal and reacted to light; the pulse was of good strength and about 100 beats to the minute; hemorrhage from the nose had ceased, but the patient had vomited blood an hour or so before. Blood was still oozing from the left ear, and on close inspection two fragments of brain substance, each about the size of a pea, were found at the external auditory meatus. There was a contusion on the forehead just above the glabella, forming quite a prominent tumor. Careful examination of the scalp failed to reveal any depression of the bone. There was a boggy swelling of the integuments of the left temporal bone above and behind the ear, and a faint depression about two inches above the external meatus, which, however, was thought not to be due to displacement of bone. Pressure on these parts produced a fresh flow of blood from the ear, the flow ceasing between the intervals of examination. No external wound was visible anywhere. The presence of brain in the discharge from the ear, the contusion of the neighboring scalp, and the profound coma pointed to serious injury at the base of the brain and in the left temporal bone.

The evidence of grave injury at this spot seemed so pronounced, and the prognosis of the case seemed so unfavorable, that although no depressed fragments of bone were felt, it seemed justifiable to depart from the ordinary rule of non-interference in fracture of the base and to make an exploratory incision for the purpose of arresting hemorrhage, affording drainage, or removing clots and fragments of bone.

The operation was performed shortly after midnight—that is, about six hours after the accident—in the presence of Drs. Hall Curtis, S. J. Mixer, and John Homans, 2d., the latter having charge of the case subsequently. The scalp on this side of the head having been shaved, a curved incision was made, starting from the auriculo-bregmatic line at a point about two and one-half inches above the external auditory meatus and returning to the level of the meatus. The flap thus made, when reflected forward, exposed the posterior half of the squamous portion of the temporal bone. A nearly vertical fracture was found at about the juncture of the middle and posterior thirds of that bone: at its upper end the fracture terminated in several radiating cracks, about one-half inch in length each, which crossed the squamous suture and involved the adjacent parietal bone; it ran downward and slightly forward to the external auditory meatus, where it could be seen running along the wall of the auditory canal. (Fig. 1.) There was no depression of the bone, but the edges of the cleft were slightly sprung at the lower portion. Considerable dark-colored fluid blood with small clots welled up from beneath on slight pressure on the bone. A one-inch trephine was placed directly over the line of fracture a short distance above the meatus, and a button of bone removed, the lower edge of which was nearly on a level with the floor of the middle fossa. The dura was found torn at this point, and the finger being introduced, could follow the fracture along the petrous portion of the temporal bone, and on being turned upward found its way to the depth of the second knuckle into a lacerated wound of the middle lobe. There were a few small clots only removed from the wound, but a considerable quantity of fluid blood escaped which had evidently been



confined beneath the bone; an arterial branch had been torn at this point, as shown by the groove in the button removed, and bled freely, but was easily controlled by pressure. The decalcified bone drainage-tubes which I had brought with me were found to be too much softened for use, and a strip of bichloride gauze was accordingly pushed gently

FIG. 1.



Line of the fracture through the squamous portion of the temporal bone. The dotted line shows the point at which the trephine was placed.

along the floor of the skull, and a number of strands of catgut tied together were pushed up into the lacerated brain tissue; a small strip of gauze was placed in the auditory canal. A dressing of bichloride gauze and absorbent cotton, fortified by a folded towel wrung out of the diluted solution, was applied and held firmly in place by a figure-of-eight bandage. Antiseptic precautions were observed throughout the operation.

Immediately after the operation the patient was cold and pale and the pulse weak; the coma remained as before; urine was passed involuntarily. During the night the dressing being stained, was reinforced. The temperature the next morning was  $100.8^{\circ}$  F., but fell to normal on the morning of the second day; he then appeared stronger. The dressing, on being changed, was found saturated with bloody serum. As it was quite a voluminous dressing, the amount of cerebro-spinal fluid and bloody discharge which it had absorbed must have been considerable.

The drains were not disturbed and an iodoform gauze and absorbent cotton dressing was applied. A strip of iodoform gauze was placed in the auditory canal, which at each dressing was carefully syringed out with sublimate solution, 1:5000. The temperature rose on the evening of the second day to 100.9°, the highest point reached, and fell steadily from this point to normal on the sixth day. On the fourth day the dressing was changed again: the catgut drain came away and the gauze was removed, and was replaced by a small strip of iodoform gauze inserted just within the margin of the cranial cavity; all the scalp stitches except one were removed. This dressing was allowed to remain three days, and on the 27th, just a week after the accident, all stitches and the gauze drains had been removed. During this period coma had been complete, but on this day, for the first time, the patient opened his eyes and recognized his mother. The expected subconjunctival ecchymosis did not occur, it being evident that the effusion had had ample opportunity to escape through the drain established.

Careful attention was paid to the condition of the mucous membrane surrounding the opening of the Eustachian canal. A small amount of iodoform was blown into the left nostril with an "insufflator" once daily, and the nostril and pharynx were sprayed once or twice a day with a four per cent. solution of boracic acid. The hygiene of the mouth was also carefully attended to. It was hoped that in this way septic infection of clots in the middle ear from the side of the pharynx might be prevented. On the tenth day the gauze drain, which had been pushed less deeply into the wound, was removed altogether, and the granulating wound healed completely a few days later. A dressing of iodoform gauze was continued over the auditory meatus, which was syringed out with a sublimate wash every few days.

The mental condition of the patient during the the second week underwent little change. Beyond moaning and crying in a childish way, and staring with a puzzled expression when disturbed, there was little to indicate a knowledge of his surroundings. In the third week there was a decided improvement, the patient being able to recognize and name individuals about him and to remember me after an interval of several days. With returning consciousness a marked degree of sensory aphasia showed itself.

The temperature during this period was slightly subnormal and the pulse rose rapidly to 115 on any excitement. Sleep and appetite were, however, excellent. About this time it was noticed that the tongue, when protruded, curved slightly to the left, and the muscles of the right side of the face were not quite so powerfully contracted as those of the left. Beyond this, however, no sign of paralysis was observed anywhere. There was a slow but steady improvement in all symptoms from this time on. A statement written out by his nurse on December 6th, about six weeks after the accident, gives a good idea of his mental condition at that time:

"In language he improves and generally can easily be understood, though there are many words whose meaning he has forgotten. 'Hilarity' had to be repeated or explained several times. . . . He will sometimes talk in French or German, but cannot explain or translate it. In trying to write the shortest or simplest words he cannot remember what letters to use. . . . He often says, or asks for, things opposite

to what he means; for instance, he will say, 'myself and the other girls.' In some ways his senses are keen, while in others he is very child-like."

It should be mentioned in this connection that the patient had been a brilliant scholar.

On December 8th the ear was examined by Dr. Clarence J. Blake, who made the following report: "The walls of the canal are but slightly reddened; there is very little discharge from the ear, and the hearing is gratifyingly good, as the tuning-fork which he heard sixty-five seconds in the sound ear is heard between thirty-five and forty seconds in the left ear. By bone conduction the fork is heard better in the left ear. In this ear also the hearing for high tones remains as good as could be expected under the existing conditions, including rupture of the membrana tympani. The condition of the ear indicates fracture of the superior wall of the external canal longitudinally and rupture of the membrana tympani, but no injury to the labyrinth."

There is little to be said about the further progress of the case, except that the mental improvement was rapid during the month of December, and by January 1st the aphasia had almost entirely disappeared. Under date of March 2d Dr. John Homans, 2d., writes me: "The tongue is still protruded slightly to the left; there are some hesitancy and stammering in the speech and an incapability of continuous mental exertion—that is, he cannot read aloud for more than half an hour without mispronouncing badly and having slight pain in the head, but in all these defects there is a steady, though slow, improvement."

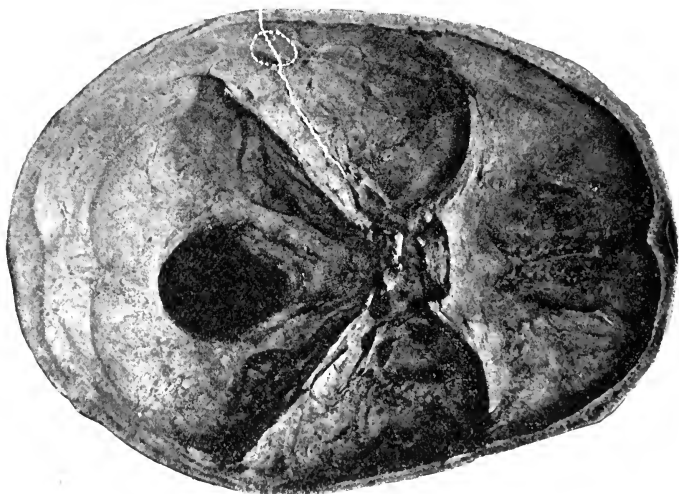
On February 4th Dr. Blake writes: "To-day young L. has no discharge from the ear, the granulations have disappeared, the membrana tympani is intact, but somewhat opaque, from the thickening of the inner coat, the Eustachian tube is free, and the hearing after catheterization is for a Politzer acoumeter  $\frac{6.5}{18.5}$ ."

The question of diagnosis is of importance in this case, as it is, of course, desirable to determine definitely whether we have a "fracture of the base" to deal with. So far as the appearances observed within the ear and the complete restoration of the hearing serve as evidence, it would appear that there had been a widely spreading fracture of the superior wall of the bony external auditory canal, stopping at the inner end of the canal. But such an assumption is highly improbable when we consider the anatomical peculiarities of the temporal bone and the structures which lie in the direct line of the fracture. The petrous portion of the bone is, it is true, largely composed of dense bony tissues, but the bony covering of the middle ear, which lies in the anterior portion of the petrous portion and near its junction with the squamous portion, is extremely thin. There are other structures which tend to make the bone particularly weak at this point.

Passing a probe through the Eustachian tube and the auditory canal of a dry specimen, and looking at the under surface of such a bone, we see that the probe marks a line of division between the squamous portion on the one side and the mastoid and petrous portions on the other. Along this line lie the canals for the Eustachian tube and tensor tympani muscle,

the external auditory canal, and the Glaserian fissure. The carotid canal, although not on this exact line, is quite near it, and weakens this portion of the petrous bone. A fracture descending from the squamous portion and passing along the wall of the external auditory canal, parallel with its long axis, would, if continued onward in the same line, pass through the structures just mentioned; and, moreover, piercing the membrane of Schrapnell would pass in front of the apparatus for hearing. It is true that rupture of this membrane implies the opening of the tympanic cavity, but the membrana tympani is placed at an extremely oblique angle with the long axis of the canal, which runs forward and inward, and a longitudinal fracture through the roof of the canal, if continued in the same direction, would rupture the membrane of Schrapnell, traverse the anterior portion of the tympanic cavity, and, avoiding the delicate structures of the middle ear, terminate somewhere in the angle between the petrous and the squamous portions of the bone—that is, at the point where the temporal bone articulates with the posterior angle of the great wing of the sphenoid bone. (Fig. 2.)

FIG. 2.



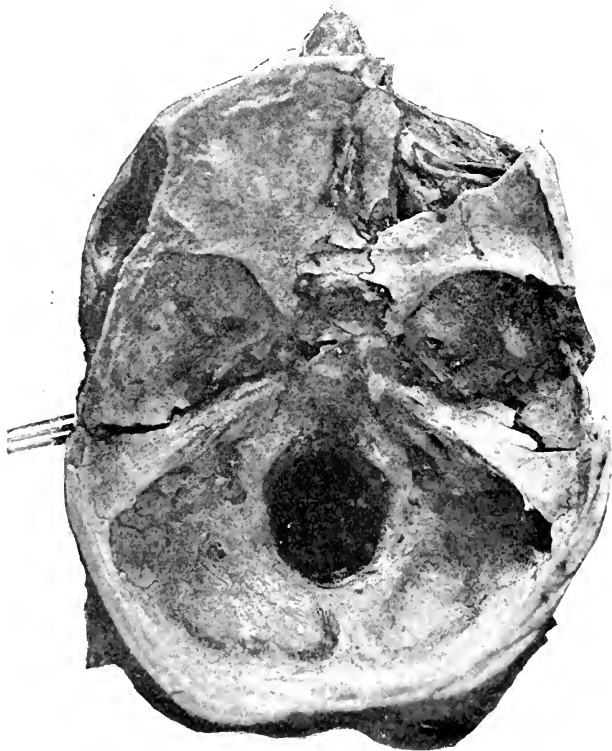
The probable route of the fracture terminating in the carotid canal at the margin of the foramen lacerum medium. The dotted circle shows the seat of the trephine hole.

Experiments on the cadaver to show what kind of violence probably caused the lesion of our patient demonstrated that such fractures could be produced by blows with a blunt instrument applied directly above the external auditory meatus.

The head of a fresh cadaver was tested in this way in the autopsy-room and a number of dissecting-room subjects were also used for this

purpose. In all cases the fracture ran down the anterior and external portions of the petrous bone to terminate either in the external margin of the foramen lacerum medium or the junction of the posterior angle of the great wing of the sphenoid with the temporal bone—that is, near the foramen spinosum through which the meningeal artery passes. In some cases the broken edges were closely in contact; occasionally the fissure was broad so that one could look down into the tympanic cavity where the bones of the ear could be seen still maintaining their normal positions. (Fig. 3.)

FIG. 3.



\* Fractures through the petrous bones into the foramen lacerum medium on each side, produced experimentally by blow of a mallet before opening the head. A glass rod is placed in the left external auditory canal.

It seems highly probable, therefore, that this is the type of fracture ordinarily produced by blows received over the external ear. But in the present case the bone was not only broken, but the brain was also severely lacerated and the dura ruptured. My explanation of the injury is as follows: In falling from his horse the patient struck upon the forehead producing the contusion already noted. This accounted, probably,

largely for the hemorrhage from the nose and vomiting of blood. The horse in falling struck him a severe blow on the side of the head, producing the fracture of the temporal bone, and at the same time the weight of the animal pressing heavily upon the cranium, forced apart the edges of the fracture and forced out the cranial contents, rupturing the dura. As the bones sprang back into place the protruded brain was nipped and expelled through the ear, thus accounting for the narrow strip of brain found on the patient's coat-sleeve.

The laceration of the brain extended deeply into the middle lobe, reaching as far as the first temporo-sphenoidal convolution and possibly involving a portion of the inferior frontal convolution. The lesion must have involved the peripheral portions of the centre for speech, and the effects of the injury must have been felt as far as the centres for the face and tongue.

We have in this case an example of fracture of the temporal bone, involving the base and communicating with the external and middle ear, and possibly the Eustachian canal, but not opening directly into the vault of the pharynx. As a complication, we have laceration of the middle lobe and rupture of the posterior branch of the middle meningeal artery.

The symptoms of fracture of the base were characteristic, consisting of profound coma, bleeding from the ear, and the escape of brain-substance. The presence of cerebro-spinal fluid was not noticed at the time of the injury, owing to the free hemorrhage, and later was, naturally, not seen flowing from the ear, owing to the establishment of suitable drainage.

The escape of brain-tissue is not a common occurrence in fractures of the base, but when observed is regarded as an unfailing sign of that lesion. Von Bergmann<sup>1</sup> says: The escape of brain-substance from the fracture of the base is an undoubted symptom of this injury, and at the same time of laceration of the membranes; it may escape from the external ear or the nose.

Nancrede<sup>2</sup> says: The escape of brain-substance by the ear or nose, of course, definitely settles the fact of basal fracture, but is of rare occurrence.

The treatment of fractures of the base, until recently, has been largely expectant. Even long after antiseptic treatment of wounds had been established, surgeons do not appear to have realized that in this form of fracture they often had a compound fracture to deal with. Recent literature, however, has taken cognizance of the claims of this region to the benefits of antiseptis. Keen<sup>3</sup> advises disinfection of the ear, filling it with boracic acid, and covering the scalp with sublimate

<sup>1</sup> Deutsche Chirurgie, Lieferung, 30.

<sup>2</sup> International Encyclopædia of Surgery, vol. v.

<sup>3</sup> Handbook of Medical Science, vol. viii. p. 226.

gauze. He recommends opening the roof of the orbit or nostril in penetrating wounds of those regions, to provide for free drainage. He also advises tamponing the nostrils with sublimate gauze to prevent passage of infective air through these passages.

Dennis<sup>1</sup> lays down rules for the treatment of this fracture. He thinks the entire scalp should be shaved and disinfected. He also irrigates the external auditory canal and the nasal passages. "Both of these should be rendered thoroughly aseptic, after which the ears should be packed with iodoform or bichloride gauze, and some absorbent cotton plugs placed in the nose."

In the case reported here every effort was made to prevent infection through the Eustachian tube. The epistaxis and hematemesis in this case may have been due, in part, to the flow of blood from this canal. It was, in any event, important to keep the inner opening to the middle ear in as aseptic a condition as possible.

This can hardly be accomplished by gauze or cotton plugs in the nose unless they are brought in direct contact with the mouth of the Eustachian tube.

Rosenbach has shown that the pharynx is a not infrequent seat of the pyogenic cocci, and the antiseptis of this region must, consequently, also be carefully attended to.

Frequent douching of the naso-pharynx and mouth with antiseptic sprays is perhaps as efficient and safe a method as any. At the Boston City Hospital diphtheria patients are sprayed hourly in this way with a 1:1000 solution of sublimate given with an insufflator, and often without waking the patient. A little iodoform powder dusted once a day on to the membrane near the Eustachian opening may aid in preserving the region in an antiseptic condition. Should a more extensive fracture, such as one crossing the vault of the pharynx, exist, it might be advisable to plug the pharynx and posterior nares with antiseptic gauze. Such a dressing would be no annoyance to a comatose patient, and it is difficult to see how a fracture of this region could be dressed antiseptically in any other way.

The use of the trephine has been recommended for depressed fractures of the base, but has not been frequently employed, and then only in the occipital region. Hutchison<sup>2</sup> has applied the trephine successfully near the foramen magnum for a depressed fracture of that region in a boy fourteen years of age; puncture of the membrane was subsequently resorted to for a serous effusion, and recovery took place.

Keen recommends an opening for drainage in the roof of the orbit in punctured wounds at that point. Allis (*Annals of Surgery*, July, 1889)

<sup>1</sup> The Medical Record, November 23, 1889.

<sup>2</sup> Medico-Chirurgical Transactions, vol. ii. p. 105.

drilled through the cribriform plate for drainage of a compound depressed fracture of the frontal bone situated an inch above the right eye—a drainage tube three-eighths of an inch in diameter was passed through the openings. The patient recovered.

Trephining for drainage in fractures of the base is a device which I do not find mentioned in a moderate search through the literature of this subject, and its successful application to Dr. Homans's patient seems to me of sufficient importance alone to justify placing the case on record.

Applied just above the external auditory meatus the instrument makes an opening which drains most effectually the middle fossa. This operation would, therefore, be applicable not only to fractures of the temporal bone but fractures through the sphenoid, and even those involving the anterior fossa. For this latter region, however, it would probably be desirable to place the trephine near the pterion, as injuries to the middle meningeal artery might thus also be attended to.

In fractures of the occipital bone the opening should be made below the insertion of the tentorium in order to drain the posterior fossa, and care should be taken to avoid the lateral and occipital sinuses. The trephine should, therefore, be placed below the superior curved line, and not too near the crest of the occiput.

Recently I had an opportunity to see two autopsies of cases of fracture of the base. In one case there was a partially detached fragment of the occiput half-way between the foramen magnum and superior curved line. The fragment could not be removed, owing to severe hemorrhage from the lateral sinus, and the surgeon had left the parts so as to favor drainage. On opening the skull but a small amount of extravasated blood was found in the pia mater of the cerebellum and medulla. In a second case where the sinuses had also been ruptured and no opening for drainage had been made, the entire surface of the brain was covered with extravasated blood.

In a fracture clearly involving the vault of the pharynx, even though it were not possible to say that the temporal bone had been injured, the trephine might be placed a little anterior to the auriculo-bregmatic line and a gauze drain inserted along the floor of the skull in the route of the fissured bone. A case can even be imagined where it would be proper to place the trephine upon the squamous portion of each temporal bone in order that the entire region of the sphenoid bone might thus be controlled by the drainage gauze.

The materials used as drains in surgery of the brain should, it seems to me, differ essentially from those used ordinarily for this purpose elsewhere. The sharp edges of bone or rubber drains are sources of irritation and may even destroy brain substance by pressure. Catgut may be absorbed too soon, but otherwise works well. Horse-hair may be suited for the scalp, but could not easily be introduced into a lacerated

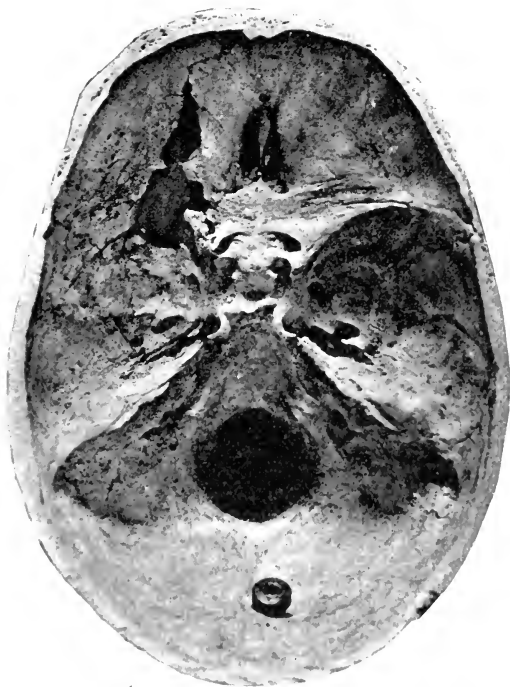


wound of the brain-tissue without danger of irritation from the sharp points.

The antiseptic gauze used in my case seemed to meet all requirements. It can be easily slipped along the inner surface of the dura and constitutes not only a drain, but also an antiseptic dressing, which protects the cranial contents from invasion from the naso-pharyngeal cavities or the ear. It can drain, not only the wound, but may absorb from the subdural space fluid which accumulates on either side of the dressing, and by capillary attraction aspirate the exudation from different directions.

No better illustration of the advantages of drainage for fractures of the base could be given than that afforded by the celebrated tamping iron case. (Fig. 4.) Dr. Harlow<sup>1</sup> thus describes the opening made through the floor of the skull :

FIG. 4.



Photograph of the base of the skull of the tamping iron case, showing the hole made by the iron in its passage through the frontal and sphenoid bones.

"The missile . . . entered the base of the skull at a point, the centre of which is one and one-fourth inches to the left of the median line, in the

<sup>1</sup> Passage of an iron bar through the head. Read before the Massachusetts Medical Society, June 31, 1868. John M. Harlow, M D.

junction of the lesser wing of the sphenoid with the orbital process of the frontal bone, comminuting and removing the entire lesser wing with one-half of the greater wing of the sphenoid bone; also fracturing and carrying away a large portion of the orbital process of the frontal bone, leaving an opening in the base of the cranium, after the natural efforts at repair by the deposit of new bone, of one inch in its lateral by two inches in its antero-posterior diameter."

In his remarks upon the case he says:

"The bolt did little injury until it reached the floor of the cranium, when, at the same time that it did irreparable mischief, it opened up its way of escape, as without this opening in the base of the skull, for drainage, recovery would have been impossible."

### ABSCESS OF THE LARYNX.<sup>1</sup>

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UNDER the name of abscess of the larynx is described "a circumscribed collection of pus, due to inflammation of the soft tissues of the larynx, interfering with the vocal functions of that organ, and sometimes with the proper action of the epiglottis." "Under this head, abscess of the larynx dependent on perichondritis is not considered" (Mackenzie<sup>2</sup>).

By some authors (Rilliet et Barthez<sup>3</sup>) this condition is described under the name of submucous laryngitis; by others (Eustace Smith<sup>4</sup>), under the title of "suppuration about the larynx;" or, as by Urunuella,<sup>5</sup> "phlegmonous laryngitis."

Some of the older writers, as Roland and Morgagni, have mentioned this disease, but it is difficult to determine in their cases whether it was dependent on perichondritis or due simply to an idiopathic inflammation of the soft parts of the larynx. Cayol, Latham, Percival, Bayle and Albus, as well as a number of other writers, have also devoted more or less attention to the subject. Those who desire to look up the earlier literature will find a very complete bibliography in Gottstein's<sup>6</sup> article.

In but few of the standard books on general medicine or diseases of children is any mention made of the condition—one of much importance, if we take into consideration the disastrous results occasionally following.

<sup>1</sup> Read before the New York Hospital Graduates' Club, November 21, 1889.

<sup>2</sup> Mackenzie (Morell): *Diseases of the Larynx*.

<sup>3</sup> Rilliet et Barthez: *Maladies des Enfants*, Paris, 1861, vol. i. p. 385.

<sup>4</sup> Eustace Smith: *Disease in Children*.

<sup>5</sup> Urunuella: *Memorias de la Sociedad Espanola de laryngologia, otologia, y rino-logia*, tome i., Barcelona; also, *Revue de laryngol.*, etc., 1887, vii. 79.

<sup>6</sup> Gottstein: *Berl. klin. Wochensch.*, No. 44, 1866.

This lack of notice is probably due to the extreme rarity of cases. Even the best books on diseases of the throat pay very little attention to idiopathic abscess, or abscess not dependent on a perichondritis or chondritis. The latter is, of course, comparatively frequent, inasmuch as phthisis, syphilis, cancer, and typhoid fever, which are generally antecedent to perichondritis, are so common.

Those who are in general practice will, I think, be glad to have their attention called to the subject, on account of the similarity to cases of croup and retropharyngeal abscess. To those who are interested in laryngology, the rarity of the case will be sufficient explanation for this paper.

We have been able to collect in literature the records of twenty-six cases, in addition to the thirteen cases mentioned by Mackenzie. Of these, the youngest was nine weeks old, the oldest seventy-one years of age, except Morgagni's case, who was eighty years old; this, however, we have not included.

Abscess in this situation is more frequent in adults than in children, the decade between 20 and 30 showing the largest number of cases—9 out of 26, or about 35 per cent. The first decade is next most frequent, there being 8 cases, or not quite 31 per cent., and of these 6 were in children under five years of age. Between 30 and 40, there are but 4 cases in our records, or 15 per cent. One case aged 17, one 40 and one 71, with two cases in which the age was not mentioned, make up the total number.

Males seem to be much more liable to this disease than females, as 16 of the cases were men, while but 9 were of the opposite sex. In one case the sex was not given.

In regard to etiology, in considerably more than half the number the reporters state there was "no known cause." In children, however, the infectious diseases seem to bear a well-marked causal relation to laryngeal suppuration. In adults, exposure to cold and wet is mentioned as the cause in 3 cases; in 2 it seemed to be due to drinking cold water—in one of these cases it occurred immediately after prolonged use of the voice in scolding; in 2 other cases chronic laryngitis was the only cause which could be found, the abscess appearing to be the result of an acute exacerbation.

In by far the larger number of cases the abscess is small and has well-marked limitations. Occasionally, though rarely, the suppuration may involve so much of the connective tissue as to make the abscess cavity extend over the greater part of the larynx (Chauffard<sup>1</sup>); or, as in a case reported by Rilliet et Barthez (*loc. cit.*), death may occur before the abscess has been completely formed.

<sup>1</sup> Chauffard: Bull. Soc. Anat. de Paris, 1881, lvi. 430-433; also, Prog. Méd., Paris, 1882, x. 105.

In Mackenzie's cases the base of the epiglottis was the seat of the lesion in 6 cases; in 4, one of the ventricular bands; and in 3 the aryepiglottic folds were invaded. In the cases here collected the sites were somewhat more diverse. In several instances more than one portion of the larynx was involved. Base of epiglottis, 6; arytenoid eminence, 2; aryepiglottic folds, 3; ventricular band, 1; vocal cords, 3; subglottic portion of the larynx, 6; internal surface of thyroid cartilages, 2; pyriform sinus, 2; the perithyroid connective tissue was also involved in 3 cases. Œdema, more or less sharply limited to the side of the larynx affected, is a very common accompaniment.

The following case came to our service at the Demilt Dispensary during the first of the present month:

Male, aged twenty-seven. No previous family or personal history, and absolute denial of all specific symptoms; no injury, and patient can think of no cause.

For several days past he has felt something in the throat which caused a constant desire to swallow, the act of deglutition being accompanied by a feeling of discomfort, but by little real pain. There has been no dyspnoea, no dysphonia or aphonia, and no cough. He has had slight general malaise and febrile symptoms. Tongue coated, bowels constipated; general condition excellent. Examination of fauces and pharynx shows nothing abnormal. By the mirror is seen at the base of the epiglottis on the left side, between the median and left lateral glossoepiglottic folds, a rounded, slightly lobulated swelling the size of half a large cherry, covered with reddened mucous membrane. There is a small yellow spot at its most prominent portion. To the touch, the swelling is soft, but without distinct fluctuation; it is not very painful on pressure. The left half of the epiglottis and the left aryepiglottic fold are swollen and œdematous. Cords normal in appearance and movement.

The patient was given a soothing inhalation and told to return in two days. As he did not return, an effort was made to follow his history. At the address given we could not find him; and, so far, have not been able to learn his subsequent history. The records of the Board of Health show that he has not died, so the conclusion is warranted that the abscess ruptured spontaneously and cure resulted. Further effort will be made to trace him.

It is well to divide the description of the disease into two classes: first, as it occurs in children; second, as it is seen in adults.

In children it is often preceded by one of the infectious diseases, the patient thus being in a more or less depressed condition. Occasionally the invasion has occurred while the child was in perfect health (Parry<sup>1</sup>). Measles, scarlatina, smallpox, and erysipelas have been noted as the cause in four of the cases; in another there was well-marked swelling of the cervical and submaxillary glands, but no history of infection. This cervical adenitis is a frequent antecedent to abscess.

<sup>1</sup> Parry: *Phil. Med. Times*, 1872-3, iii. 580-582.

The child may be first noticed to have some difficulty in swallowing, deglutition of solids being more troublesome than swallowing of liquids; if an infant, it will be unable to nurse, or on attempting to swallow there will be a spasmodic closure of the glottis with return of fluid through the nose and mouth; or the child will cry when nursing is attempted, absolutely refusing to take the breast. Accompanying, or sometimes preceding this, is difficulty of breathing, constant and increasing gradually in severity. This state of constant dyspnœa is frequently interrupted by alarming attacks of spasmodic dyspnœa, brought on by exertion, attempts at deglutition, or any irritation, or sometimes without any apparent cause. The face becomes dusky, eyes prominent, lips much cyanosed, respirations rapid, 30 to 50 per minute, and accompanied by recession of the soft parts of the thorax and epigastrium during inspiration; in fact, all the signs of laryngeal obstruction are present. Each inspiratory effort causes well-marked stridor, while expiration is comparatively easy and noiseless. Orthopnœa is frequently present, the child sitting up in bed and crying if disturbed; or, if any attempt is made to place him in a recumbent position, starting up in an access of intense dyspnœa. There may be retraction of the head and rigidity of the muscles of the back of the neck. Cough of a hoarse, but not brassy, character was present in over half the cases tabulated. In one case it was spasmodic. There is very apt to be aphonia, more or less complete; generally the voice is simply weak. Hoarseness is occasionally present.

On examination, there is no faucial or pulmonary lesion to account for the symptoms; and as the laryngeal mirror cannot be used, the finger must be introduced, when the abscess, if supra-glottic, may be felt. The examination will probably cause a severe attack of dyspnœa. In many cases in children there is a swelling visible, or apparent to the touch, at one side of the larynx (Stephenson,<sup>1</sup> Parry<sup>2</sup>) near the anterior border of the sterno-mastoid, or in front of the larynx (Chauffard<sup>3</sup>). This may cause displacement of the larynx. If present, it is of much aid in diagnosis. The cartilages, in rare instances, are eroded and roughened.

The disease, as a rule, runs a rapid course, from four to ten days being the usual time required for the abscess to form.

The abscess may rupture spontaneously, though this is very unusual in a child, or it may be ruptured accidentally, as recorded by Möller,<sup>4</sup> in whose case on the introduction of a laryngeal catheter, a large amount of pus was expectorated with relief to all symptoms. By far the most

<sup>1</sup> Stephenson: *Edin. Med. Journ.*, 1873, xix. 312, 318.

<sup>2</sup> Parry: *Phila. Med. Times*, 1872-73, iii. 580-82.

<sup>3</sup> Chauffard: *Bull. Soc. Anat. de Paris*, 1881, lvi. 430-33; also *Prog. Méd.*, Paris, 1882, x. 105.

<sup>4</sup> Möller: *Königsberger med. Jahrb.*, ii. 270.

frequent termination, however, is the death of the child, four of the eight having died with the abscess unopened. Of the three children in whom the knife was used, two recovered; the one who died, having been the victim of smallpox, did not possess enough vitality to overcome the depression consequent on the prolonged suppuration.

The prognosis, under the best of circumstances, is not good, five of the eight children having died. In one case the severity of the disease was such that the child died before the abscess had formed, there being an extensive submucous infiltration of pus.

The treatment recommended is the inhalation of soothing vapors and the external application of fomentations and poultices. On the first appearance of a tumor, an incision should be made if the dyspnoea be extreme. The operation by the mouth is, in young children, a very difficult or entirely impossible one. Bearing in mind the frequent occurrence of dangerous spasmodic dyspnoea, the possible necessity of tracheotomy should never be lost sight of; and everything should be in readiness for its performance at a moment's notice. Indeed, it is an open question, in view of the ever-present danger of fatal asphyxia, whether a preliminary tracheotomy should not be done, especially in those cases where no external tumor appears.

During convalescence tonics and alteratives must be administered, according to the necessities of each particular case.

Cases of laryngeal abscess are to be differentiated from croup by the less rapid invasion; by the presence of dysphagia or odynphagia; the comparative ease of expiration; the less frequent as well as the less brassy cough, and the increase of dyspnoea on assuming the recumbent position. Oedema of the larynx is exceedingly rare under five years of age: the etiology is different, and examination by the finger shows the general tumefaction.

The symptoms of this affection and many cases of retro-pharyngeal abscess are so nearly alike that the diagnosis must be made by examination of the throat. In the first, the fauces and pharynx are normal; in the latter, the characteristic swelling can be felt if it cannot be seen. If a laryngeal abscess, the presence of a tumor externally would be a great help, though it must not be forgotten that the sides of the neck are sometimes much swollen in retro-pharyngeal abscess.

In adults the disease may develop with scarcely any symptoms, as in the patient of Berger,<sup>1</sup> who, after two days of slight dyspnoea, suddenly developed intense dyspnoea and died the same evening; or in that of Döring,<sup>2</sup> in which the patient, a soldier, though complaining of slight

<sup>1</sup> Berger: *Med. Ztg. Berl.*, 1855, xxiv. 105; also, *Preussische Vereinszeitung*, 1855, No. 22.

<sup>2</sup> Döring: *Henle und Pfeufer's Zeitschrift für rat. Med.*, III. Reihe, Bd. ii. 257.

pain in the throat, went to parade about noon, and at five o'clock the same afternoon was dead. In this case the abscess was situated in the same position as the one here reported, except that it was on the right side.

In both of these cases there must have been a longer duration than was apparent by the symptoms.

In other cases the symptoms may be similar to those in children; dyspnoea is the most constant, and, at the same time, the most distressing symptom. As in children, the patient is subject to attacks of intense dyspnoea. Dysphagia is present in about half the cases, being more marked, naturally, the more exposed the site of inflammation is to irritation by the food. Odynphagia is not so frequent a symptom. Currie<sup>1</sup> mentions orthopnoea as present in his case; but this is the only adult in whom it is mentioned, thus differing greatly from children, in whom it is very frequent. Stridulous breathing and cyanosis are occasionally seen; but, like hoarseness and aphonia, are not present in every case. Pain is a much more prominent symptom in adults; and tenderness on pressure over the larynx externally is present in a large proportion of cases, whereas the presence of a tumor externally is a rare occurrence. In a few cases there is the feeling of a foreign body in the throat, causing, as in our case, a constant desire to swallow.

There may or may not be a febrile movement; if present, it is not of very great intensity.

The symptoms generally increase in severity for several days, when the patient may die; or the abscess may rupture spontaneously, or be opened by the attendant—in either case with instantaneous relief to the sufferings, and also to the danger, of the patient. The abscess may rupture during a violent attack of coughing, as in the case recorded by von Kraicz.<sup>2</sup>

In some cases, after slight indefinite symptoms lasting several weeks or months, a patient comes under observation and is found to have an abscess in some part of the larynx (Thin,<sup>3</sup> De la Sota,<sup>4</sup> Marcet and Hillman,<sup>5</sup> Ganghofner<sup>6</sup>). These may be said to belong to the class of chronic abscesses of the larynx.

Occasionally the abscess cavity refills after the first opening, as recorded in the cases of Marcet and Hillman and Ganghofner, making necessary a second, or even a third incision.

<sup>1</sup> Currie: Trans. Med. Soc. of New Jersey, 1876, 166–168.

<sup>2</sup> Von Kraicz: Wiener med. Wochenschr., 1882, No. 22, 656.

<sup>3</sup> Thin: Edinb. Med. Journ., 1860, vi. 537.

<sup>4</sup> De la Sota: Archives of Medicine, 1884, xi. 168–174.

<sup>5</sup> Marcet and Hillman: Lancet, 1868, 757.

<sup>6</sup> Ganghofner: Prag. med. Wochenschr., 1883, viii. 477–490.

Oedema of the larynx is sometimes the immediate cause of death, as recorded by Stromeyer<sup>1</sup> and others.

Out of 25 cases in which the result is known, the abscess was not opened in 10 cases; of these, all but one died, this being 82 per cent. of the entire number of deaths, which was 11. In most of these cases the diagnosis was made post-mortem. Five ruptured spontaneously; of these only one died (of broncho-pneumonia after tracheotomy). Ten abscesses were opened, and in this class only one died—the infant already referred to, who had had variola.

The treatment to be pursued is plainly indicated by the above, namely, a careful external and internal examination of the larynx of every case presenting symptoms similar to those detailed, and an immediate opening of any swelling giving the appearances described in the early part of this article.

Soothing or stimulating applications by means of the laryngeal brush may be used if the case does not progress satisfactorily after the abscess has been opened.

Cysts can scarcely be mistaken, on account of their lack of redness, their regularity and the well-marked vascular ramification on their surface.

New growths may, at first sight, cause much difficulty in diagnosis; but the history, seat, cause, and generally the consistence, will enable one to differentiate them.

Abscesses due to perichondritis or chondritis, while presenting similar appearances occasionally, can be excluded by careful attention to the patient's general condition, history of present illness, and examination by the probe, when necrosed or roughened cartilage may be felt.

For help in looking up and translating German references, the writer desires to acknowledge his great indebtedness to Dr. C. J. Colles, of this city.

34 WEST THIRTY-THIRD ST., NEW YORK CITY.

## REPORT OF A CASE OF INJURY TO THE HEAD.

DEATH AFTER FIFTEEN YEARS FROM OTITIC MENINGITIS. EXTENSIVE  
NECROSIS OF PETROUS PORTION OF TEMPORAL BONE. AUTOPSY.

BY J. B. SHAPLEIGH, M.D.,  
OF ST. LOUIS, MO.

ALTHOUGH the cerebral lesions from aural disease have been reported in such abundance as to make them familiar to all, yet the following

<sup>1</sup> Stromeyer, quoted by Cohen—Diseases of the Throat.



case presents features perhaps sufficiently unusual and interesting to justify its addition to the list:

**CASE.**—Andrew S., colored, aged thirty-nine, was admitted to the City Hospital on September 4, 1889, with a diagnosis of malaria. Family history and hygienic surroundings good. Has drunk to excess in his time and uses tobacco. Has had malarial fever several times, and about twenty-five years ago contracted a venereal sore, supposed to have been chancroid. About fifteen years ago he was struck on the left side of the head with an ax and rendered unconscious for a few minutes. On regaining consciousness, he was very weak and fainted from loss of blood. He recovered from the injury in about three weeks, and was apparently as well and hearty as ever. After nine or ten months, however, he began to suffer from headache, which disappeared on the escape of pus from the wound on the side of the head. He has had similar attacks about once in every two years; relief being obtained in the same way, except that about eight years ago he noticed that the pus came from the left ear instead of the wound.

*Present condition.*—Patient complains of intense headache. Examination of the head reveals a scar behind and slightly above the left ear, extending downward and backward for a distance of about four inches. There is complete left facial paralysis. Patient cannot open his mouth more than about half an inch. He states that this condition and the paralysis date from the injury of fifteen years ago.

There are no other signs or symptoms of paralysis to date. Mobility and sensibility in the extremities seem to be normal. The headache was at first confined to the left side in the vicinity of the scar, but now extends over the entire head and down the middle of the back. He has had some fever and drowsiness, but no rigors or chills.

On September 10th I was asked to examine the patient's ear. His condition had not changed materially during the preceding six days. The auricle was in normal position and presented nothing unusual. The external auditory canal was completely occluded at a depth of one-half inch. This cul-de-sac contained a small amount of cerumen only. It was lined throughout with normal skin. The opposing wall offered firm resistance to the probe, and to the needle gave the impression of bone covered by a layer of fibrous tissue. The left temporo-maxillary articulation was very prominent, and the mastoid process seemed to be placed further forward and downward than usual.

There was no sign of any inflammation about the ear or surrounding parts—no pain, tenderness, redness, or swelling over the mastoid, no congestion of the auditory meatus; and there had been nothing to call the patient's attention to the ear for at least two years. Hearing, both by air and bone conduction, was *nil*. Patient stated that he "had not heard with that ear since the accident, and that his face had been stiff since then." Vertigo was present in a moderate degree. I could not ascertain whether or not it had been noticed in previous attacks. The intellectual faculties did not seem to be impaired. The diagnosis made was either a meningitis or cerebral abscess, probably resulting from ear disease—the absence of symptoms of compression at this stage favoring the former.

*September 13.* Vomiting last night and to-day. Hiccough this morning for several hours. Groans and begins to talk incoherently.

14th. Growing rapidly worse. Frequent vomiting, unchecked by bismuth and morphine.

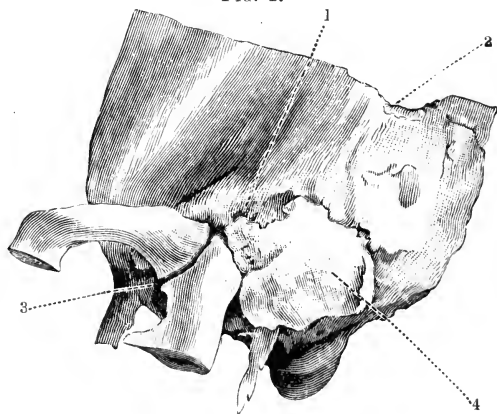
I saw the patient again at this time, and, although no symptom had developed tending to localize the cerebral trouble, advised, as a last resort, trephining the skull, suggesting a point one and one-fourth inches above and behind the external meatus as the spot at which to apply the trephine.

Dr. Dalton operated on the next day, enlarging the trephine opening to admit the finger. Nothing being found in this way, an aspirator needle was carefully inserted into the brain in various directions. No pus was obtained, but a considerable quantity of rather bloody fluid escaped, probably from the lateral ventricles. The patient did not bear the operation well, and died in about ten hours.

*Autopsy.*—On removing the brain quite a hemorrhage was seen under the pia mater on the left parietal lobe. The pia mater at the base of the brain was thickened and opaque, and pus was found in its meshes and under it. On section, both lateral ventricles were found distended by a blood-stained fluid.

In the left occipital lobe was a cavity as large as a pigeon's egg, with smooth, firm walls, and containing a purulent fluid. In the cerebellum on the left side of the vermiform process was a smaller cavity as large as a hazelnut, containing a purulent looking fluid, while to the right was a pinkish mass of about the same size—apparently a new growth.

FIG. 1.



Outer surface of temporal bone.

1. External auditory meatus. 2. Trephine opening. 3. Bony mass on inner side of neck of inferior maxilla. 4. Mastoid process.

The thickened dura mater was adherent to the greater part of the petrous bone, but was slightly elevated from the posterior surface over a cavity presently to be described; here also the thickening was greatest. No perforation of the dura was found, but the pus had burrowed under it as far as the foramen magnum. Pus was also found in the internal auditory canal. No lesions of importance were found in the other organs.

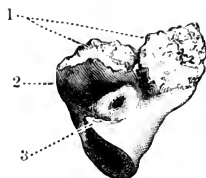
Examination of the temporal bone showed that the greater portion of the mastoid process had been completely separated from its base and

was displaced forward and a little downward, being held in its new position by a mass of dense fibrous tissue. The mastoid cells were obliterated. To the inner side of the neck of the inferior maxilla was firmly attached by osseous union a mass of bone. This was probably the condyle which had been cut off by the blow.

The articular surface of the glenoid cavity was destroyed and a false ankylosis formed. The inability to open the mouth resulted from this fibrous union as well as the adherent bony mass.

The posterior border of the inferior maxilla and the anterior border of the displaced mastoid were in contact, thus entirely blocking the external meatus, except above, where the closure was completed by a band of very dense fibrous tissue stretching from the zygoma to the anterior and upper border of the mastoid. The inner portion of the meatus was patent and contained a little pus.

FIG. 2.

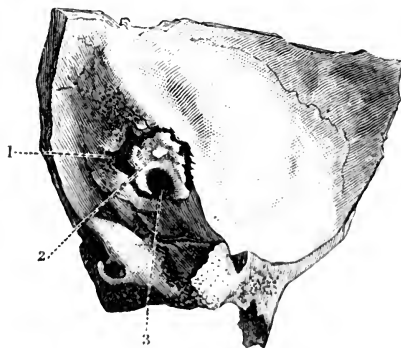


Inferior maxilla—seen from in front and above.

1. Rough articular surfaces. 2. Bony mass. 3. Coronoid process.

The membrana tympani was slightly thickened and perforated in its lower portion. The malleus and incus were in position, but the stapes could not be found. It had probably been destroyed by the carious

FIG. 3.



Inner surface of temporal bone.

1. Opening on posterior surface. 2. Necrosed bone. 3. Inferior auditory meatus.

process. The petrous portion of the temporal bone was the seat of extensive necrosis, which had almost completely enucleated the bony capsule of the labyrinth, the lower surface alone still maintaining its attachment to the pyramid. The necrosis was most marked in the softer bone on the outer side of the labyrinth, where quite a cavity had been

formed, opening on the posterior surface of the petrous portion at about the site of the aquæductus vestibuli. It was over this cavity that the dura mater was elevated.

The anterior wall of the tympanum presented an opening into the carotid canal about the size of an apple-seed. A sinus opening on the promontory led through the vestibule into the internal auditory meatus penetrating its septum to the outer side and just below the horizontal ridge. The wall of the Fallopian canal was eroded from above the centre of the oval window backward to its downward turn. Here it entered the cavity above mentioned and was lost, to be found again a short distance above the stylo-mastoid foramen. The wall between this cavity and the tympanum—that is, the posterior wall and angle of the latter—was perforated in many places and presented a sieve-like appearance.

Necrosis of the temporal bone, even of parts of the labyrinth, is not of necessity fatal. Exfoliation may occur and the sequestrum be removed through the external meatus or the mastoid process.

Cases of this kind, where the sequestra proved to be parts of the labyrinth, have been reported by many observers, among them Schwartze (*Arch. of Otol.*, vol. ix.), Politzer, Toynbee, Gruber, Pomeroy (*Trans. Amer. Otol. Soc.*, 1872), and Agnew (*Amer. Med. Times*, vol. vi.). Exfoliation of the entire labyrinth is much rarer. It may, however, occur; the dura mater by thickening and proliferation of connective tissue on its outer surface, being able to resist the spread of the inflammation and prevent the invasion of the cranial cavity. Toynbee reports such a case (*Arch. of Otol.*, vol. i.), where the sequestrum included the entire labyrinth with the internal auditory meatus and the commencement of the facial canal. About the same lines of separation were forming in the case here reported.

Sir Philip Crampton, according to Wilde, removed a sequestrum consisting of the entire labyrinth with the inner wall of the tympanum. Gottstein (*Arch. of Otol.*, vol. xvi.) removed from a girl of eight years a sequestrum in which could be seen a part of the squamous portion of the temporal bone, of the annulus tympanicus, of the mastoid process, and of the labyrinth with the fenestra ovalis.

Though the entrance of pus into the cerebral cavity is not necessary to the occurrence of meningitis or abscess of the brain, it may occur in several ways. Most commonly, perhaps, it breaks through the tegmen tympani or the roof of the antrum; or the inroad may be through the posterior surface of the petrous bone, sometimes without injury to the labyrinth, sometimes with its partial destruction or entire separation from the surrounding bone; or it may enter through the internal auditory meatus, to which access is gained by erosion of the wall of either a semi-circular canal, the cochlea, the vestibule, the facial canal, or through either or both the labyrinthine fenestræ. It may advance by several of these paths simultaneously.

In the case reported the pus forced its way through the cochlea, vestibule, and facial canal into the internal meatus, thence to the brain; the advance in other directions being prevented by protective thickening of the dura mater.

The autopsy fully explains the symptoms presented by the patient on admission to the hospital—viz., headache, vertigo, fever, deafness, and facial paralysis. The patient stated that the deafness and paralysis appeared at once after the injury. With regard to the former he might easily have been mistaken, but scarcely in regard to the latter. I am inclined to believe that the blow injured the facial nerve in the descending portion of the Fallopian canal, thus causing immediate facial paralysis, but that the hearing was at first only interfered with by the occlusion of the external meatus and while of so little practical use to the patient as to be considered lost, only became absolutely *nil* when the suppuration had advanced to the labyrinth.

In regard to treatment, the question naturally arises, Ought an attempt to have been made to penetrate the external meatus or to open the mastoid?

With the information to be gained ante-mortem I think we must answer in the negative. First, the indications were that the canal was closed by bone, probably the superior-posterior wall of the osseous meatus driven in by the direct force of the blow. Operations for relief of complete atresia of this nature are difficult, and not to be undertaken without some favorable information or inference as to the condition of the deeper parts of the ear. All the facts obtainable in regard to this point were decidedly unfavorable. Again, supposing that, although two years had passed with no aural symptoms, the disease had originated in the ear, the history of the case and the absence of all signs of mastoid inflammation pointed to the petrous portion of the temporal bone as the probable site of the trouble rather than the mastoid itself. Finally, cerebral implication was so evident that any operation must have been considered only as a last resort, and, under the circumstances, it was thought wiser to wait for some symptom to develop which might aid in localizing the operation. As none appeared, the trephine was applied in the situation best suited for reaching both the middle and posterior fossæ of the skull.

## AN INVESTIGATION INTO THE ETIOLOGY OF PHTHISIS.

BY HENEAGE GIBBES, M.D.,

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AND

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## II.

## ON THE CLINICAL HISTORY OF PHTHISIS PULMONALIS.

BY E. L. SHURLY, M.D.

To present the following remarks upon the clinical history of phthisis pulmonalis, without reference to its etiology, would seem to be a disregard of established notions of order. But, as the subject of etiology involves pathology, and as the pathology has not yet been entirely presented by my colleague (Dr. Gibbs), it is deemed proper to leave all etiological considerations to a future time. A typical classification of the subject upon a purely clinical basis, of course, is well-nigh impossible, since a given group of symptoms or signs will embrace two or more commonly recognized varieties. I shall, therefore, present the following classification, having in mind the course only: 1st, acute; 2d, subacute; and 3d, chronic phthisis pulmonalis, leaving out of the category so-called miliary tuberculosis, which, for reasons afterward to be given, seems to be a disease of the lungs coincidently only with other organs; although, as we are aware, generally embraced under the title of pulmonary tuberculosis.

ACUTE PHTHISIS PULMONALIS, like the other classes indicated, has its period of accession, its symptomatology, and its physical signs, all of which are, in the majority of cases, quite similar to each other. The stage of accession involves antecedent injury or disease, such as an essential fever, dysentery, syphilis, rheumatism, previous acute pulmonary or bronchial attacks, etc., congenital defects of structure or function, bad habits or food, unsalubrious surroundings, over-work, over-worry, or other abnormal demands upon the economy. The symptomatology, in the rough, presents about the same features as the other varieties, except in the order or intensity of occurrence. It includes cough and expectoration, hæmoptysis, pyrexia, with rapid and small pulse, anorexia, indigestion, constipation (sometimes diarrhœa), emaciation, diaphoresis, mental irritability or delirium; hoarseness and other laryngeal symptoms, ischio-rectal abscess, etc. The course is a short one, usually from two to six months, and each successive step is marked by persistent intensity.

The physical signs at first are obscure; the early dyspnœa, or increased movement of chest, is frequently in part due to pyrexia; percussion may show no change (relatively) of resonance. Auscultation will, however, show diminished vesicular, and often interrupted, murmur, prolonged expiratory murmur—perhaps in patches—with abnormal transmission of heart sounds.

Soon, however, clicks, creaking, and fine moist râles (crepitant and subcrepitant) appear, generally at the upper part of the chest (unless a previous croupous pneumonia has existed, when a lower lobe may be the seat of the advanced physical signs). The clinical history would indicate that in the majority of cases it is essentially a lobular pneumonia very generally disseminated, and not a miliary tuberculosis, as so often classified, for the following reasons: Acute tuberculosis (of which there are two forms) is a general disease, indicated by a steady, rapid loss of vitality, with a steady pyrexia, uniformly rapid and small pulse, absence of continued rigors and exacerbations and remissions; in other words, not typically hectic. There is little or no cough (unless latterly, when the lungs may be invaded); tenderness of the abdomen is a constant symptom, either of the anterior surface or of either hypochondrial region; diarrhœa is an early and more or less continuous symptom, and delirium more or less active is exceedingly common. Besides, the physical signs of the chest are almost absent, excepting, perhaps, dyspnœa, which, in this event, as before mentioned, may be very properly ascribed to pyrexia. Of course, if the patient lives long enough for the lungs to become invaded, there will be observed the usual physical signs (clicks, creaking, and moist râles) with dulness on percussion, etc. In monkeys inoculated with tuberculous sputum cough may be absent throughout the whole course, while in monkeys who contract phthisis (broncho-pneumonia) in the ordinary way (excepting by forced inhalation of dried sputum) cough is an early and persistent symptom.

The morbid anatomy also coincides with this observation, for, in the former, even at the end of two months (if they live that long), the lungs are scarcely invaded, while the spleen, liver, and other glandular organs are everywhere studded with caseous masses in various stages of degeneration. In the latter, on the other hand, the lungs are the principal seat of disease, showing more or less caseation and excavation, according to the stage of the disease (just as is observed in human phthisis), with little or no change in the other organs. Should life continue to an unusual extent, however, the disease may extend to some of the other organs. Again, acute miliary tuberculosis is not preceded by previous pulmonary disease; in fact, as is well known, may not be recognized until the time of autopsy, while acute phthisis shows itself primarily in the pulmonary apparatus. This leads us to the consideration of another point, viz.: Whether we may not be able to recognize *clinically* two

forms of miliary tuberculosis, especially in children. The one more acute, presenting all the symptoms of typhoid fever (perhaps somewhat anomalous), great adynamia, early delirium and pyrexia, abdominal tenderness with more or less diarrhœa, etc., running a course which is not typical, and showing an anomalous range of temperature. Such cases are by the most careful practitioners often diagnosed as either typhoid fever or peritonitis, until the autopsy reveals the tuberculous nature of the disease. The other form I would call attention to, is slower in its course and effects; pyrexia and emaciation are steadily progressive, not, however, reaching an intense state for, perhaps, a few weeks, and then rapidly going on to caseation and blood-poisoning. These cases show a great irregularity in their symptomatology; for instance, a great degree of adynamia rapidly succeeded by incredible strength for a short time, constipation soon succeeded by obstinate diarrhœa, anorexia and coated tongue, followed by appetite and a show of digestion, mental excitement and then hebetude, and so on, the pulse and temperature, however, keeping steadily abnormal. In either class there may be little or no cough, and scarcely any physical signs denoting disease of the chest.

Without going into further detail, suffice it to say that these two varieties of disease (not infrequently met with) differ from one another mainly by the typhoid character and more rapid course of the one, and the more general symptoms, slower course, and graded progression of the other. Notwithstanding the difficulty of making accurate clinical observations in the lower animals, we have been able, in at least two cases, to observe this differentiation in monkeys.

SUBACUTE PHTHISIS, embracing all varieties between the acute and chronic forms, is undoubtedly a broncho-catarrhal or plastic pneumonia, of slowly continuous or intermittent progress, more or less localized. It may be the sequence of an acute bronchitis, a lobar or lobular pneumonitis, and by successive steps may proceed from above downward, toward the alveoli; or, originating in the lobules, proceed thence outward (as I attempted to show in a paper read in Buffalo two years ago). This course—alternate latency and intensity—is not so prominent a feature as in the chronic form, but is sufficiently striking to constitute a distinction from the acute form. Subacute phthisis is often complicated with intercurrent attacks of pleuritis, frequently regarded as tubercular pleuritis, which, of course, decidedly alter the course and sometimes the pathogenesis of the case. As shown by Aufrecht, Talma, and others, it is probably not so much the deposit of so-called tubercle, as an extension of the inflammatory process, which brings about this complication.

Patients suffering from this form of the disease have often (although not always) a bad family history, have never been robust, show defects of structural development, either general or in the chest; show a notable



lack of muscular strength—incapable of much improvement; have been throughout their lives subject to “taking cold;” have suffered more or less from some form of nasal, or naso-pharyngeal catarrh, indigestion, etc. If females, have suffered from excessive lactation, or from some uterine disease. This low state of the “economy” being unfitted to withstand the vicissitudes of every-day life in a northern climate, sooner or later shows signs of permanent pulmonary disease, such as cough, hæmoptysis, pyrexia, nocturnal diaphoresis, expectoration, anorexia, emaciation, progressive exhaustion, etc., intermissions and exacerbations taking place so that the whole course may occupy from one to two years. The physical signs, obviously, are variable, at one time showing evidence of extending inflammation and softening (moist clicks, crackling, mucous râles, with patches or areas of bronchial respiration, and bronchophony). Then signs of retrogression (dry râles, etc.) until at last, cavernous, bubbling, and gurgling râles, with signs of extended consolidation, indicate the final disorganization.

The exacerbations and remissions of this form—whether depending upon exciting causes or not, and whether ushered in with hæmoptysis or not—serve to distinguish it from the acute type; while the comparatively shorter and less complete remissions plainly distinguish it from chronic phthisis. There are cases, of course, where the line of demarcation is indistinct, especially between acute and subacute. But this fact is also applicable to other diseases as well. The ultimatum of cases ending fatally is caseation, cavitation, and often tuberculosis. This latter event, however, it seems to us, in no way invalidates the belief—based upon experiments upon monkeys, and a study of the clinical history of phthisis in children—that each form is essentially an inflammatory process, and not infrequently terminates in recovery, while recovery from general or miliary tuberculosis, as far as known, is impossible.

The high degree of adynamia often observed, as compared with the limited amount of evident local disease, might be urged in favor of the tubercular origin of the disease, if it could not be shown that the pathology and clinical history of tuberculosis do not coincide with such a view. And, further, if it were not well known that many cases of phthisis pulmonalis—with considerable lung tissue involved—show a comparatively small degree of adynamia.

CHRONIC PHTHISIS PULMONALIS, as is well known, embraces a class of cases undoubtedly similar pathologically, and certainly similar clinically, to the preceding forms, excepting, perhaps, those denominated fibroid, by Sir Andrew Clark, and a variety commonly known as mechanical, which are supposed to differ from the ordinary types on account of the adenoid and connective tissue of the lungs being the seat of the principal morbid action. Although it must be acknowledged as a fact that some such peculiarity belongs to this class of cases, yet it is a

matter of common observation that a sort of fibrosis is set up by nature in defence of nearly every attack of any considerable duration, and constitutes the most important factor of remission or "a stay of proceedings."

The clinical history of chronic pulmonary phthisis, either in its longer or shorter undulatory course, is too familiar to need detailed mention here; for all the symptoms and all the physical signs observed in disease of the lungs are, or may be, present in the course of a given case. The long duration and irregular course of many of the cases of idiopathic origin are certainly one of the inexplicable puzzles which beset the practitioner very often, and would seem to alienate it from all so-called septic or blood diseases, excepting, perhaps, syphilis, which, it must be conceded, it often resembles in its clinical history.

Whatever its pathology may show, the clinical history labels chronic phthisis an inflammatory disease of successive limitations, involving, little by little, different portions and tissues of the lungs and, therefore, producing different lesions from time to time, according to the extrinsic circumstances. What part therapeutics may play in determining the length or variability of its course, cannot be laid down as yet.

Whatever part the bacillus tuberculosis may play in the pathogenesis of the several varieties or classes of pulmonary phthisis, it would appear, from a clinical standpoint, at least, that we are forced to retain the ideas of the older authorities: That phthisis pulmonalis is primarily an inflammatory process, whether subsequently tubercle or any other degeneration appear among the inflammatory products or not, and that phthisis pulmonalis and tuberculosis are really two distinct diseases.

### III.

#### THE TUBERCLE BACILLUS.

BY HENEAGE GIBBES, M.D.

It will be seen from the foregoing papers that our investigations have resulted, so far, in showing that phthisis pulmonalis and tuberculosis have distinct features, both clinically and histologically. It is necessary now to review the grounds on which Koch's tubercle bacillus has been so universally accepted as the virus of tuberculosis.

First, it is assumed that the method used in cultivating this organism frees it entirely from anything which may have been removed from the lungs with the portion of tubercle first taken to make the cultivation.

Secondly, it is stated positively that the lesion produced by the inoculation of a pure culture of tubercle bacilli, produced by these methods, results in the production of tubercles identical with those found in the human lung.

With regard to the method used in cultivating the tubercle bacilli, some remarks made by Dr. Charles Creighton, in a pamphlet published by him in 1884, deserve careful attention. He says:

"It does not appear to be generally known that the method whereby Dr. Koch professes to cultivate the microorganisms of tubercle apart from the tubercular substance and apart from all other bacteria, does not fulfil the original intention of his "dry" method at all. Dr. Koch himself never acknowledges the change of intention; on the contrary, when he announces that he will apply the dry method of pure cultivation to the bacilli of tubercle he refers the reader to page 18 of his former work (*Mittheilungen aus dem Kaiserlichen Gesundheitsamte*, vol. i., Berlin, 1881) for the principle of that method, and for a statement of its practical advantages, and in the passage referred to we find the following: 'For the subsequent cultivation of the bacilli no reliance can be placed on any method that does not provide, as far as possible, for the exclusion of foreign germs, for the isolation of those which are the objects of our study from others, which it is impossible absolutely to exclude. Such separation cannot be effected in liquid media, and we must have recourse to solids, on which each germ reproduces itself at the point where it was originally deposited.' When Dr. Koch in the opening sentences of section II of his work on tubercle (*Mittheil. aus dem K. Gesundheitsamte*, vol. ii., 1884, pp. 46-47) announces that he will adopt the dry method of cultivation as being the best, he does not discuss its suitability to the peculiar circumstances of bacilli *deeply involved in the midst of tuberculous tissue*; he merely refers his readers to a passage which is irrelevant to the question in hand, however interesting it may be in itself; and he then proceeds to apply a sort of dry method, not to separate what he calls 'strange' or 'foreign' bacteria from the rod-shaped organisms of tubercle, but to eliminate the tuberculous matter itself."

Dr. Creighton quotes from the *Medical Times and Gazette*, July 15, 1882, an article on the "Cultivation of Organisms on Dry Surfaces:"

"He [Dr. Koch] started, indeed, with the same intention, viz., to separate the bacilli of tubercle from other bacilli that may have been mixed with them. But that purpose very soon became subordinated to another and more arduous task—the separation of the tuberculous matter from the organisms present in it. So absorbing did the new factor in the problem prove to be that he disregarded altogether his original purpose of separating one kind of bacillus from another; if anything led him to suspect that the bacilli of putrefaction were present, he did not attempt to eliminate them, but he discarded that particular test-tube altogether. Thus, the dry method, which had certain recommendations for one particular purpose, came in the course of the research to be used for another and quite different purpose, for which it had nothing originally to recommend it. The task of separating various kinds of bacilli from one another being given up, no one would choose the method of cultivating on a dry surface in preference to cultivating in fluid, if his intention was to show that he had completely eliminated the presence of virulent tubercular matter. . . . Dr. Koch nowhere professes to use the fractional method. I can find only one passage in the whole of his monograph (p. 52) in which he tells us how much of the dried-up matter he took from the first test-tube to transfer to the second; and in that passage he merely says 'einige schüppchen.' It appears to me that this is the crux of the whole cultivation experiment, and Dr. Koch passes it over almost in silence. . . . It is in vain for Dr. Koch and Mr. Cheyne to assure us that the dried-up matter which they scraped together for an inoculation experiment from the serum-coated surface of the last test-tube was bacilli and nothing else. No one would expect to find morphological traces of tubercle in it; the heat of an oven at 98° F. for several weeks would be sure to resolve the original pieces of tubercle to amorphous particles. But nothing is anywhere said of a residue

of tubercular dust on the surface of the serum ; and we are left to suppose that the detritus of the tissue entered into the composition of the crusts and scales and was transferred with them. It was not until the last cultivation was finished that Dr. Koch really pulverized them (in a mortar with a little boiling water) previous to inoculating them upon animals."

"That the bacilli grew and multiplied in these crusts cannot be doubted, but there is no evidence to show that the substance which emerged from the routine process was essentially different from the substance that went in."

I have quoted so much from Dr. Creighton's article, as it will show that to an impartial observer there are several points in Koch's own history of his work which are open to adverse criticism. Many other observers have traversed the same ground ; notably Spina, who took up separately every claim of Koch's and produced arguments and experiments to disprove them. Instead of meeting Spina's arguments in a scientific manner, Koch made an attack on him, accusing him of ignorance in the same manner he had formerly attacked Pasteur. This method of disarming criticism has been adopted by some of Koch's disciples. Dr. Formad, in a series of articles in the *Philadelphia Medical Times*, 1884, makes some pertinent remarks on the subject. In a visit to Koch's laboratory he states that Koch had an excellent staff of assistants, but it was a matter of surprise that there was not a single competent pathologist connected with the laboratory. This remark I have heard from many who have worked in Koch's laboratory and its significance can hardly be underestimated. Dr. Formad states :

"Watson Cheyne, to whom the British Association for the Advancement of Science by Research had intrusted the investigation of tuberculosis and the testing of Koch's researches, did not do justice to his mission. From Cheyne's report (*The Practitioner*, April, 1883) it is seen that he made no earnest attempt to study the nature of tuberculosis, because all he did was to study and experiment with bacteria met with in tuberculous lesions. He went to see some of the different mycologists, consulting only believers in the germ theory ; obtained some French and German bacteridian material, and, after testing the same, he reports, with great emphasis, that Koch's tubercle bacilli are the more genuine tubercular virus than Kleb's or Toussaint's micrococci. He did not inquire, nor did he care, whether tuberculosis may have any other cause ! He simply imitated Koch's experiments with the bacillus material in rabbits and guinea-pigs (only), and obtained, of course, the same results. Furthermore, he made some control experiments which, as I will show, pass for naught, as they are much more deficient than those of Koch."

I have already alluded to the unreliability of Watson Cheyne's work. In spite of all this, in *Green's Pathology*, 7th ed., 1889, p. 347, Eng. ed., occurs the following :

"These results (Koch's) have been fully confirmed, especially by Cheyne (*Practitioner*, April, 1883), and there is now no doubt that they are absolutely true."

Dr. Formad's articles extend through four numbers of the *Philadelphia Medical Times*, 1884, and they are well worth reading at the present time.

In regard to cultivations on solid media, such as the blood serum used by Koch, the investigation made by Dr. Klein into the action of the jequirity bacillus has a most important bearing. These researches are published in the supplement to the *Thirteenth Annual Report of the Local Government Board*, London, 1883-84. In 1882 de Wecker, of Paris, drew attention to the therapeutic value of the beans of *Abrus precatorius*. They are used in the Brazils under the name of jequirity in the case of granular lids or trachoma. Sattler found that when an infusion of the beans had been made, after a time it would contain numerous bacilli resembling *bacillus subtilis*. Sattler cultivated these bacilli on blood serum and gelatin through successive cultivations and yet he found that they retained their specific properties. Dr. Klein made an infusion of the beans with every possible precaution to prevent contamination, and fifteen minutes after it was made inoculated the eyes of healthy rabbits with it, at the same time he inoculated a number of test-tubes containing sterile peptone solution, broth, etc. Intense inflammation was produced in the rabbits' eyeballs in twenty-four hours, while all the test-tubes were clear and limpid and they remained so. No growths of micro-organisms appeared. It was shown by Sattler that the spores of these bacilli would stand boiling for a few minutes. Klein took an infusion of the beans full of bacilli and spores and boiled it for half a minute; he then inoculated sterile test-tubes with this boiled infusion, these tubes were placed in the incubator and kept at a temperature of 35° C.; after twenty-four to forty-eight hours the fluids were found to be teeming with the jequirity bacillus. But no amount of this material produced the least symptoms of ophthalmia, the boiling had rendered it inert.

Drs. Warden and Waddell, of Calcutta, had, however, prior to Klein's experiment, isolated an amorphous solid which they named "Abrin." This was the poisonous principle of the beans and the bacilli had no action in the matter. It is obvious from this that some portion of the chemical poison had been carried over in each successive cultivation in the solid culture-medium. Can we say that Koch's experiments are free from the same fault? A number of experiments have been made from time to time by independent observers, which have caused them to express grave doubts as to the exact relation of the tubercle bacillus to phthisis.

#### THE NATURE OF THE LESION PRODUCED BY THE INOCULATION OF TUBERCULOUS MATTER IN ANIMALS.

I have already stated in my former paper that the artificial tubercle produced by the inoculation of human tubercular material in the lower animals in no wise resembles the typical human tubercle. I mean by this the reticular form which I have fully described, which is also fully described by Dr. Payne in his work on pathology, and there stated to be the type of tuberculosis. Neither does the artificial tubercle resemble

the other form or caseous tubercle already mentioned. The small, rounded nodules which form in the lungs and other organs of inoculated animals in few cases contain any giant cells, and when they are present they do not in the least resemble those found in the human lungs; they are exactly similar to those described by Zeigler in his researches with glass plates inserted into the tissues of animals; they also resemble those occasionally found in inflammatory tissue. It must be evident to every careful observer that the giant cells in the human lungs are not, as it were, accidental formations. From their similarity and from the arrangement of their nuclei they must all have been formed in a somewhat similar manner. It seems to me probable that they originate in the lungs from a fusion of the cells in the infundibula and alveolar ducts; their arrangement round the periphery of the cell, and the evident tubular appearance presented by some, which can be well seen with a binocular microscope, certainly favor this view, but this will not account for their formation in lymph glands. In tubercle of the testis, I have before now demonstrated the process of their formation from the fusion of the epithelium in the seminiferous tubes. Now, no one, I imagine, pretends to say that giant cells of this kind occur in artificial tubercle of the lungs. Next, the reticular stroma so well marked in the reticular tubercle of the human lung, is never seen.

Here, then, are two of the essential features of typical human tubercle which are absent from the artificial in lower animals. Where, then, is the resemblance?

In artificial tuberculosis there is an aggregation of round cells; this forms a nodule, which in the early stage is of a rounded form.

Careful examination shows this to consist of cells which vary in shape and size, but which in many cases are larger than a red-blood corpuscle, while a few assume large proportions and contain several nuclei. This is evidently some process of a subacute character induced by the inoculated material which acts on the normal cells, causing swelling and slow disintegration. To understand this process, it is necessary to examine sections from lungs or other organs where it is just commencing. For this it will be found advisable to inoculate several animals and kill them at varying periods, from ten days to a month or more. One of the best examples I have ever seen was in a monkey, which I inoculated with human sputum from a typical case of rapid phthisis; this animal died from accident twenty-two days afterward, and the only abnormal change was in the spleen. Some of the Malpighian corpuscles with a low power showed a small round mass in or about the centre, which had not taken the logwood stain in the same manner as the other parts. On examining these with a higher magnification they were found to consist of cells which were evidently those of the normal adenoid tissue, but under some abnormal influence. On examining the small arteries in the Malpighian

corpuscles they showed a thickening of their walls and obliteration of some of the muscle coat from the infiltration of a hyaline material. In some places this projected beyond the wall of the vessel. The appearances presented by these small arteries were somewhat similar to those seen in scarlatinal nephritis. Among the altered cells was also a quantity of hyaline material, in which they seemed to be imbedded. This hyaline matter stained very faintly with logwood. The cells themselves presented various appearances; they had become enlarged and the majority had altered their shape, becoming elongated or angular, but some were oval; all, however, had become more transparent, and the intra-nuclear network, now showing plainly, gave them a granular appearance. There was nothing to show any inflammatory change. The process seemed to be a gradual one. This is the appearance presented by the smallest nodules when examined with a one-twelfth oil immersion and good illumination. All sections from this spleen presented the same changes.

I then examined the lungs of another monkey which had been killed six weeks after inoculation and where the morbid changes in those organs were very slight. I found precisely the same appearances. I then examined the organs of various animals, all inoculated with human phthisical material, and I found that from the initial changes already described the process went on in a similar manner until the nodules became very much larger, the cells gradually becoming paler and disintegrating, until in the older nodules a mass of amorphous material occupied the whole of the centre; some slight inflammatory action was set up in these at the periphery in some cases. There is nothing whatever in these nodules at any stage that resembles the fibroid reticulum found in a typical miliary tubercle of the human lung.

It is as well here to notice a statement made by Friedländer, as well as by Cornil and Ranvier, that this reticular structure is not present in the fresh tubercle but is due to the hardening process. This I am positive is incorrect, as I have used various hardening methods and the result is always the same—either caseous or reticular tubercle. It is not likely that different hardening methods would produce identical results if those results were due to the hardening process itself. I always use, in these cases, strong alcohol, or Müller's fluid, and use these methods because I have to seek for the presence of bacilli; but if, in any case I wish to study the histological features, I then harden a portion of the tissue in chromic acid mixture, which could not be done if the bacilli had to be studied, as it prevents their staining.

I will now mention briefly the results obtained in an investigation carried on by me under the direction of Dr. Klein, for the Local Government Board, London, in 1883-84. A large number of guinea-pigs were inoculated with human sputum full of bacilli from cases of tuberculosis.

The experiments were made in my laboratory, and at the end of the year's work I submitted my report, together with microscopical slides of all the cases, to Dr. Klein. I will mention some of the conclusions he drew from the investigation. I quote from the supplement to the *Thirteenth Annual Report of the Local Government Board*:

"From this series of experiments we learn, then, that after inoculating guinea-pigs with sputum of human tuberculous lungs full of tubercle bacilli, the animals become, in the majority of instances, afflicted with a general pathological condition consisting in enlargement and deposit of tubercles in the lymph glands, lungs, etc. . . . We seem to be yet far from understanding the share of the bacilli in the production of what we speak of pathologically as tubercles. . . . Mr. Watson Cheyne says that the tubercle bacilli first invade the epithelial cells and then set up a multiplication of these, associated with certain vascular inflammatory changes, leading to the formation of tubercles. I have before me sections through typical tubercles in all stages in the lung and liver of some of the guinea-pigs above described, and I fail to see that this statement is in any way borne out by the facts of the case. I find some tubercles in liver and lung which are in an early stage of formation and in which there is not a trace of any tubercle bacilli . . . owing to the fact that in the caseating lymph glands, near the seat of inoculation, and in the caseous or advanced tubercles, the bacilli occurred numerous, we are justified in assuming that caseous matter is a very good nidus for their multiplication. But we may not, from the facts above enumerated, infer that the presence of the bacilli starts, so to speak, the several tubercles. . . . I think that their presence in a tubercle does not necessarily mean that they preceded the tubercle; and, if this be conceded, as I think it must be conceded, it further follows that the formation of the tubercles is not a direct result of the presence of the bacilli. The next series of experiments was made on rabbits, and this is the conclusion drawn: From this we see, then, using human tubercular matter full of bacilli, no general tuberculosis was produced in rabbits; in one instance only a local effect—abscess—was produced containing bacilli; in half the instances a localized pneumonia with bacilli was established, and that was all. We have, then, a marked difference between guinea-pigs and rabbits as regards human tubercular matter."

In the following year I made a series of experiments in feeding guinea-pigs and rabbits with human tubercular matter—*Fourteenth Annual Report Local Government Board, London*. Klein says:

"On comparing the results of the above experiments with those produced by subcutaneous inoculation . . . it will be seen that the effect of feeding animals on tubercular matter differs little from that obtained by inoculation . . . in the guinea-pigs; though a general tuberculosis was produced, the process did not seem so rapid as when the tubercular matter was inoculated into the system. . . . In rabbits the morbid change was confined to the lungs, and even in one allowed to live for over thirty-six weeks. No other organ was affected. . . . It is worthy of notice, that in rabbits, no matter whether the virus had been introduced by feeding or by inoculation, the lungs were the only organs affected. . . . The distribution of the tubercle bacilli appears to vary very much, but it has this constant feature: it is always associated with caseation. In many organs taken from animals killed in the early stages of tuberculosis—i. e., at the very commencement of the process—the most careful examination of a very large number of sections failed in every instance in detecting any tubercle bacilli."

I have since this carried out a large number of experiments with monkeys in the same manner, and I have invariably found the same



results. The lesions produced in the monkey are identical with those of the guinea-pig and I could produce no change in the process by inoculating from one animal to the other, and *vice versa*. It will be seen from the above, that the tubercle bacillus—the cause of tubercular growth—is invariably absent from the first commencement of the disease-process it initiates and does not appear on the scene until the lesion it has produced has begun to decay—that is, caseate. The only way to get over this by those holding the bacillary views was to ignore it, and that is what was done. Surely, now, after these years the subject may be approached in a scientific manner and the above experiments disproved if possible. Many of the statements made contradicted themselves. Dr. Payne, in his work on *Pathology*, p 254, under the heading “The Processes of Disease,” speaking of the action of microorganisms, says :

“They do not cause overgrowths directly, but only produce the reaction growth of inflammation above described. This growth is, accordingly, limited to the connective tissue and is not essentially different from that set up by other injuries.”

At page 489, in speaking of the action of tubercle bacilli in pulmonary phthisis, he says :

“Within the alveoli, and possibly in the smallest bronchioles, they set up changes resulting in the formation of a miliary tubercle. It is now clearly established that the tubercle is formed at first inside the alveoli, though at one time it was thought to belong especially to the interstitial structure of the lung.”

Here is a definite statement as to the action of the bacillus, but its action is here said to be on epithelial structures, not on connective tissue, as stated before. Dr. Payne, therefore, must mean that the reticular fibroid structures, as well as the giant cells, are formed by the action of the bacillus on the walls of the alveoli of the lung, which are composed of cells of hypoblastic origin. Now, in many cases of tuberculosis where the tubercles are of the reticular form, identical tubercles are found in the lymph glands. Are we, then, to understand that the tubercle bacillus is able to form a reticular tubercle from material, no matter whether it is of hypoblastic or mesoblastic origin, and this tubercle is exactly similar in either case? At page 498 he says :

“The inoculated disease must necessarily be considered as the same since they may be derived from human tubercle, and their anatomical characters are identical.”

All my experience in inoculating animals goes to disprove this statement, as I have said before ; and further, the bacillus cannot be found in the earliest stage of the change it is supposed to initiate.

In the case of the monkeys before mentioned I carried out two elaborate series of experiments to try and find the tubercle bacillus in the commencing nodules, using three or four of the most approved methods

of staining, and in some cases leaving the sections in the stain four or five days. These experiments were conducted with the greatest care, and yet not one single bacillus could be found with a one-twelfth oil immersion or Zeiss's apochromatic lens. Among the control experiments at the same time with the same stains, sections of lungs with tuberculosis that had been in spirit for eighteen years, gave multitudes of bacilli brightly stained, sputum kept in the open air for three months showed numerous bacilli, and sputum spread in May, 1883, on cover-glasses and kept in an ordinary pill-box, came out as brilliantly as when perfectly fresh. I think after this I am justified in considering that the bacilli could not be found, because they were not there.

If, from the time of Koch's announcement of his discovery in 1882 up to the present time, there had been series of investigations all more or less confirming it, there would be nothing at all surprising in the fact that the majority of the writers of the present day should accept it as an established fact. But that this is not the case is shown by the authors of the latest text-books in the English language quoting as their authority work done in 1882-83, which has been shown by many investigators to be unreliable.

In speaking of pulmonary phthisis Dr. Frederick T. Roberts, of University College, London, in his *Hand-book of the Theory and Practice of Medicine*, 7th ed., 1888, p. 451 (Eng. ed.), says:

"Without entering into any discussion on the subject, I must still express my concurrence with those who take a wider view of the pathology of this complaint than to regard it as being always tubercular, and still less as invariably requiring the action of tubercle bacilli for its development."

Dr. Douglas Powell, in his work on *Diseases of the Lungs*, says, page 280 (Eng. ed.), 1886:

"It cannot then be said that the position of the tubercle bacillus, with regard to the etiology of phthisis is as yet established, although so intimate and exclusive is its association with the lesions of that disease that by its recognition in excreta or expectorations, we obtain a valuable criterion for diagnosis in obscure cases."

Aufrecht, in a work recently published, says he cannot see how medical men can think and believe that the bacillary origin of tuberculosis is an established fact. He thinks the adoption of the above view has brought confusion into the clinical side of the question. He says the outcome of his investigations leads him to think that the pathological change is not the same in all cases, the disease not running the same course clinically. This is important as coming from a man who has worked with Koch on the spot, and the book is well worth reading.

I have said enough to show that there is still room for work before this question is finally settled.

There are one or two interesting points that have occurred in my

investigations which may be worth mentioning. One of these was where I inoculated three monkeys at the same time, with the same sputum, from an acute case of phthisis. Ten days after the inoculation one of the monkeys seemed to be ill and weak, although previously I could see nothing the matter with him; he was not very carefully examined, as he was savage and had awful teeth, and on the next day I chloroformed him. On making a post-mortem examination, I found that he was the subject of general tuberculosis in a most marked degree. On examining the place where I had inoculated him, I was unable to find the slightest trace of the puncture; the sputum had been absorbed without producing any inflammatory symptoms whatever. This seems to show that tuberculosis is a constitutional disease and that animals suffering from it are insusceptible to further inoculation.

The other two monkeys developed large abscesses at the seat of inoculation. When I opened the abdominal cavity of this monkey, I found a fine living specimen of *pentastoma constrictum* lying free in the omentum. It measured just an inch in length. I have often found them encysted in the liver of monkeys, but never before free in the abdominal cavity. *Pentastoma constrictum* has been found in the human liver and lungs, and this case of the monkey shows that it is possible for it to get free in the human abdominal cavity.

Another point having some bearing on the heredity of tuberculosis may be of interest. I inoculated two guinea-pigs with the same human sputum; one of these was a male and the other a pregnant female. The male died twenty days after inoculation with general tuberculosis. About a month after the inoculation the female had four young; she died five months and twenty-eight days after inoculation, of general tuberculosis. A second experiment on two females was made, in which the non-pregnant guinea-pig died thirty-five days after inoculation; the pregnant one had four young and died four months after inoculation. I kept these young guinea-pigs separate from others, and as soon as they were old enough, I bred them in and in (brother and sister), keeping each lot distinct. I did this in the one case for five generations, in the other for seven, and out of every litter I took one when half-grown and killed it, and examined all the organs. They were in every case perfectly normal.

I tried several experiments, such as placing one of a litter in a cage with two inoculated animals, and keeping it there for a week, while others were allowed to remain all the time in the house where the inoculated animals were kept; I found, however, that in these animals nothing short of actual inoculation would produce tuberculosis, and then it differed in no way from that produced in other guinea-pigs. Here there were animals notoriously prone to become tuberculous in their ordinary state, rendered doubly so, one would think, from their history and sur-

roundings, and yet they did not become tuberculous unless the tubercular matter was actually introduced into their systems.

In my next paper I shall discuss the question of bovine tuberculosis and spontaneous tuberculosis in other animals and birds; also cases where the liver and other organs of animals, birds, and snakes contained numbers of bacilli having the distinctive reaction of tubercle bacilli, but without the formation of tubercles.

## AGORAPHOBIA AND ALLIED MORBID FEARS.

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A FEW months ago Dr. Garman, of Great Barr, asked me to take a patient of his into the Queen's Hospital for observation and treatment. I found that she was suffering from well-marked agoraphobia. This was the first case I had met with in a large clinic of nervous disorders during the past nine years. I therefore considered that it was sufficiently rare and interesting to form the basis of a paper upon this affection and other allied morbid states of mind.

On referring to the literature of the subject I found it very scanty. No mention is made of it in many of our chief text-books of medicine. Dr. Roberts has contributed a short article upon the subject to *Quain's Dictionary of Medicine*. Dr. Gowers, in his admirable work on *Diseases of the Nervous System*, makes no mention of agoraphobia or other morbid fears, and, in fact, scarcely notices neurasthenia itself. Ranney says nothing about it, though he writes fully on neurasthenia, as might be expected from an American author. M. Rosenthal, in his clinical treatise on *Diseases of the Nervous System*, mentions agoraphobia as one of the symptoms of chronic cerebral congestion, and states that he has seen two cases following mental overwork. He also states that it may occur during prolonged gastric disturbance. Dr. Grainger Stewart, in his clinical lecture on "Giddiness," briefly dwells upon the condition. He reminds us that Westphal, in 1872, gave a most careful clinical description of agoraphobia. In 1878 Legrand du Saulle treated the subject in a masterly manner.

In the *British Medical Journal*, vol. i., 1879, is contained an abstract of a paper by Dr. Meschede, of Cassel, who described a form of mental affection the reverse of agoraphobia, namely, a dread of closed spaces and small rooms. This condition is called *clithrophobia* or *claustrophobia*, and is evidently closely allied to agoraphobia, the patient in both instances being unable to form an accurate conception of the dimensions

of his surroundings. In the *American Journal of Insanity*, vol. xlv., Dr. Andrea Verga describes his own case. He suffered from acrophobia, or an intense dread of being in high places.

Dr. Raggi, in the *Gazette des Hôpitaux*, 1878, described a mental affection in which the patient could not endure being within any enclosure, this being the antithesis of agoraphobia, though closely allied to it in its nature.

In the *Lancet*, January 10, 1885, a surgeon relates the particulars of his own case. He suffered first from religious mania, brought on by overwork and anxiety. When he recovered from this, agoraphobia supervened. He dreaded going out lest he should be taken ill.

Dr. Sutherland relates a case in the *Lancet* of January 17th, of the same year, and he claims that it is usually due to sexual or alcoholic excess.

Another case is related in the *Lancet* of April 25, 1885. I have looked through the whole of the volumes of *Brain*, hitherto published, and have failed to find any mention of the condition.

In the *Journal of Mental Science*, vol. xxxiii., is contained a translation of an article by P. J. Kovalensky, Professor of Psychiatry and Neurology at Karcov, on "Folie du Doute, or the Delusion of Doubt." The article is very interesting, and the author discusses the relation of these morbid fears (pathophobia) very fully. He describes neurasthenia as the soil from which grow up the degenerative psychoses or neuroses. The subjects of these fits of morbid fears are usually neurasthenics, the unstable condition of the nervous system being either inherited or acquired. It is well known that the children of neuropathic parents often inherit either decided organic modifications of the nervous system or a predisposition of the nervous system to psychosis or neurosis. In the first case idiocy, in the second neurasthenia, hysteria, and insanity appear. Beard calls neurasthenia the "American disease," but Dr. Kovalensky states that it might more correctly be called the "Russian disease."

Neurasthenia is a very common disease. The majority of its victims may, under favorable conditions, pass through life without developing morbid fears or insanity, but some fail in the battle of life and develop serious affections.

The term agoraphobia is derived from two Greek words, ἀγορά, a market-place, and φόβος, fear. It is certainly a very good name for the affection.

It must be remembered that agoraphobia, or a morbid dread of being in an open space, is not a disease, but a symptom only, and it is only one of a group of very numerous morbid fears that may supervene in neurasthenic people. These morbid fears are almost innumerable, and it is folly to attempt to name each particular fear, but such terms as agoraphobia and clithrophobia (dread of open and closed spaces) are certainly

worth retaining, for these are among the most important of such fears. An agoraphobic patient is completely incapacitated for any outdoor employment, and in an advanced stage is quite unable to leave his house.

The term mysophobia is applied to morbid fear of infection, astraphobia to a morbid dread of lightning. The whole condition might be termed pathophobia, the varieties scarcely necessitating a separate name.

With every discovery in science a morbid fear may be developed. For instance, a young woman was brought to me at the Queen's Hospital recently, by her mother, who told me that she had a dread of getting into a tram-car, fearing that she would die in it, and being seized with severe trembling and palpitation on merely seeing a car. This patient had been in an asylum some years previously.

Perhaps telephone fear also exists.

In all these cases of pathophobia there is an evident absurd disproportion between the cause and the amount of fear produced. The subjects of these morbid fears are fully aware of their absurdity, but cannot control themselves, and cannot be reasoned out of them; moreover, they act upon their fears. The young woman who dreaded a tram-car walked five miles to the hospital, while her mother travelled by the tram.

The subjects of these morbid fears are usually neurasthenic; in many cases this neurasthenia has been inherited, there being a history of epilepsy, insanity, nervousness, or some other neurosis in the family.

In rare cases no family history of neurosis can be obtained, and the neurasthenic condition has been brought on by overwork, worry, excessive lactation, frequent pregnancies, sexual excess, or other debilitating cause. Later on, morbid fears supervene upon the unstable condition of the nervous system, and finally, actual insanity may compel the friends to send the patient to an asylum. I have been struck with the marked potency of childbearing as a cause of agoraphobia and allied morbid fears. The patient whose case I relate later on attributes her illness to childbearing. In another case, also, the sister of a medical man was seized with intense agoraphobia after her first confinement. The affection lasted several months, but she recovered after living at Brighton for some time.

These morbid states are really conditions of partial emotional insanity, and in some cases end in well-marked insanity.

A patient who was under my care for acute hypochondriasis, and whose visits I dreaded from the long and detailed list of symptoms he would persist in writing down for me to read, each one of which I had to explain, and who would, on leaving me, return again after getting a few yards from my rooms with a fresh symptom, developed the dread of infection. He would wash his hands dozens of times in the day, and would not touch anything without washing directly after. Later on he had a dread of dirt, then became violent and dangerous. He was in an

asylum for a few months and was discharged cured. His sister was also in an asylum, and the family history of neurosis is well marked.

The morbid fear present may remain unchanged through life. It may disappear, to be followed by some fresh fear, or complete recovery may supervene. I have seen recovery supervene where the patient's circumstances have been greatly improved. There is no doubt that a want of success in life, entailing constant worry, is a powerful factor in the causation of mental diseases, especially in men.

The condition named "*folie du doute*," in which there is a marked enfeeblement of the will, may supervene in all cases of neurasthenia, either following a morbid fear or existing by itself, and without the appearance of pathophobia. Hammond relates an interesting case of "*folie du doute*." The patient, an intelligent gentleman, would spend an hour or two in determining whether he should take his coat or his shoes off first in undressing for bed. In the morning he would sit for half an hour with his stockings in his hands, unable to determine which should be put on first.

Minor degrees of this condition are frequently met with. After a heavy day's work, medical men will sometimes find themselves reading over their prescriptions two or three times, not feeling certain that they have ordered the correct doses. Similarly, business men will worry about their letters, being afraid that the wrong letters have been sent off.

To return to agoraphobia, one of the most important of the pathophobias. The essential condition of the affection is a morbid dread of an open space. The patient is quite well in his own house, but if he tries to cross the street, or to go into a field he is seized with an intense feeling of fright, and has to run to a wall, or fall down, being quite unable to proceed. Violent palpitation occurs, and a dreadful feeling of constriction is experienced over the heart. The legs feel weak and the knees give way, the patient staggers about, and all his limbs tremble. Numbness of the extremities also commonly occurs. There is no vertigo, as a rule, and no confusion of mind or loss of consciousness. Pallor of the face and profuse perspiration are usually present. The condition may supervene suddenly or gradually, and the patient is quite conscious of the foolishness of his fears, but unable to conquer them, the will power being in abeyance and quite subservient to the violent emotional disturbance. The special senses are usually unaffected. The patient is worse if the shops are shut when he goes out, and he finds relief from a trivial circumstance. He can walk behind a cart, or even if a child will walk by him. He can walk across a ploughed field, but not across a meadow. The symptoms rapidly subside as soon as the patient reaches his own house, but he will feel exhausted for some time after. In severe cases he is completely incapacitated and rendered a prisoner in his house. The condition may last a lifetime, or for months or years, and then dis-

appear, or definite symptoms of insanity may supervene. It is essentially neurotic, and not hysterical.

Neurasthenic patients are always shy and reserved. Their children are nervous; they suffer from a great liability to convulsions, terror, and nightmare, and are highly emotional. Such children have difficulty in getting through life successfully. Neurasthenic patients, in fact, are on the verge of insanity, yet proper treatment will, undoubtedly, in many cases save them.

A busy tradesman was brought to me two years ago, suffering from mental depression. His uncle had committed suicide and he himself had always been highly nervous. He told me that he was always contemplating suicide, and that he dared not be left alone. He had been sent to the seaside, but returned worse. I found that he lived at his place of business, that the rooms were very small and stuffy, and that he worked from twelve to sixteen hours a day. On my advice he lived out of town, riding to and fro on horseback, and diminished his hours of work to eight. In three months he was quite well, and has remained so since. He would most certainly have committed suicide or been in an asylum had he not changed his mode of living.

Considering the vast number of cases of neurasthenia that exist, and the dreadful sufferings entailed, it seems a pity that more attention is not given to the subject in this country. I have often found the rooms inhabited by patients suffering from melancholia and other morbid conditions of the brain to be small and dull.

There can be no doubt that gloomy surroundings and want of light and space at home are potent factors in the causation of mental diseases. I have at the present time three patients suffering from melancholia. One patient, a bachelor, has very small, uncomfortable rooms, without pictures or objects of interest in them, and I have no doubt that his disease was brought on mainly by the depressing effects of his surroundings. I have visited the homes of the other two patients and find them very gloomy.

In the treatment of agoraphobia and allied disorders, it is necessary to discover the cause of the exhaustion of the brain, and to remove it if possible. Nervine tonics, such as valerianate of zinc, the hypophosphites, iron, quinine, and phosphorus are useful. A residence at the seaside or in some elevated country district does good. A liberal dietary, and moderation in stimulants, tobacco, tea, and coffee are necessary. The patient, moreover, should be encouraged to discover some manœuvre by which the morbid fear may be overcome, but should not be forced to go into places that bring on the attacks.

The following is a brief account of my case:

M. H., a married woman, aged forty, was admitted into the Queen's Hospital on August 29th, complaining of an inability to walk in an open



space or in strange places, and also of depression of spirits. No history of nervous disease in the patient's family exists, as far as she knows. The patient has always been of a highly nervous temperament, but has never had an attack of the same kind before the present one. She has always had a good home and plenty of food. She has had nine children and one miscarriage. She suckled two of her children—one for twelve months, the other for a year and eight months. She attributes her illness to having so many children, and to over-suckling.

Nine years ago, while nursing a relative, and being in a very weak state of health, she was seized one day with a horrible dread and with shivering while going up stairs. A few months later, while walking out of doors, she had a fit of terrible fear and palpitation. Ever since she has been subject to these attacks. They begin suddenly and end suddenly, and are unattended with any confusion of mind or loss of consciousness. She cannot walk in an open space; she can walk out of her house for a few yards, and then is seized with an intense fear that she will never reach home again. She then turns and runs back, and can run better than she can walk, but cannot run in a straight line. If she carries a weight, such as two buckets of water, she can walk straight. She can also walk well in an entry and walks much better in a room where there are lines along the carpet, far better on a bare wooden floor, than where there is a plain carpet, for the lines assist her greatly. She can go across a ploughed field, but not across a meadow. A high wind will assist her. She never suffers from giddiness, but whenever she is seized with the fear she has violent palpitation.

While in the hospital it was found that she could not walk in a straight line even in the ward. She said that this was because it was a large room and strange to her, for she could get about her own house very well. On attempting to walk in the grounds of the hospital she could get along fairly well by the side of the wall, but if she got a yard or two from the wall she was very unsteady, and was seized with intense palpitation and fear. She was quite unable to walk straight out of the ward door and had to cling to the side and go by the wall. In returning to the ward she would quicken her pace and usually run in. A stick was a great help to her, but did not enable her to overcome her fear entirely.

Besides these attacks, which were invariably brought on when she tried to go out of doors, the patient was very nervous and subject to fits of depression and numbness in the hands and arms. The numbness would come on in bed, never in the daytime when she was up, and it never affected the legs. If strangers went into the ward, she said the bed seemed to sway, and she felt inclined to scream. She felt more comfortable with a screen near the bed. She also complained of shocks, and of going hot suddenly, and of throbbing all over her. The patient was somewhat anæmic and looked depressed. The thyroid gland was a little enlarged but soft; the pulse rate was accelerated during the attacks, averaging one hundred, but between the attacks it was normal. There was no loss of sensation anywhere, tactile, thermal, and painful impressions being normally perceived. The muscular sense was also normal. The pupils were equal, and responded normally to light and accommodation. The fundus oculi was healthy. The patient complained of seeing at times black spots and flashes of light before the eyes. There was slight deafness of nerve origin, but smell and taste were normal. The plantar, abdominal, and epigastric reflexes were present, the knee reflexes

were exaggerated, but there was no ankle clonus. There was no loss of power in the legs, the foot thrust being powerful, and no incoördination. Her memory for recent events was a little impaired, but the intellect was otherwise normal. The heart was a little enlarged and a soft systolic murmur was heard at the apex, but was not conducted into the axilla or elsewhere.

The patient had only been in the hospital about ten days when she insisted on going out, saying that she could not make herself comfortable in a strange place, and had never been able to do so since the commencement of her illness. During her stay in the hospital her temperature had been normal, and she had never had any hysterical seizures, or any of the ordinary symptoms of hysteria. She was decidedly of the neurotic and not of the hysterical type. Iron, salts, arsenic, and bromides were prescribed, but they did not in any way improve her condition.

I have lately received further information concerning this patient from Dr. Garman. He says that she is better, and had been to church since leaving the hospital, this being the first time for five years. She had recently been suffering from distressing irritability of the bladder, relieved by bromides. She had continued taking the iron and bromides, the prescription for which I gave her when she left the hospital.

The following case illustrates the opposite condition to agoraphobia, and is called claustrophobia, or a dread of shut spaces :

The patient, a lady about fifty-six years of age, suffers from attacks of fear and palpitation whenever she is shut in a railway carriage or a small room. She can travel by rail or go into a small room as long as the doors are not locked, and she has to bribe the guard to leave the door unlocked. I have observed her in two or three attacks. She cannot control them, and she suffers from intense fear and palpitation, with numbness of the hands and a sense of constriction in the wrists. These attacks occur if she goes out on a visit and has to occupy a small bedroom. She is better if she knows the door can be opened, and quite well in a large room. She is of a nervous temperament, has brought up a large family, and attributes her attacks to having had a large family, and to the worry incidental to the management of her grown-up sons. The attacks are purely mental, for she can be deceived into believing that the door of a carriage is unlocked, when the attack at once subsides.

Minor degrees of agoraphobia and allied fears are of common occurrence.

A young man, now under my care, suffering from dilated stomach with chronic spasm of the diaphragm and other muscles, cannot go into any place of public meeting, such as a church or theatre, without being obliged to leave. He feels choked, but has no fear, though he suffers from palpitation. This patient, getting into business troubles, became insane, and is now in an asylum.

Another patient dare not go to church, for, whenever he does, a feeling of nausea comes on and he is obliged to leave, or else he would vomit.

In both the above cases overwork and worry seem to have been the exciting causes. The sister of one of the patients suffered some years

ago from agoraphobia, from which she recovered after a few months' residence at the seaside.

The following are the conclusions I have arrived at from a study of many cases of mental derangement and morbid fears that have come under my notice :

That agoraphobia is a symptom only and not a disease in itself, its subjects being neurotic and often showing symptoms of nervous disturbance previous to its onset.

That it may be acute or chronic.

That it is the most important of the morbid fears, as it completely incapacitates its victims.

That any exhausting disease, habit, or occupation may be the exciting cause in people predisposed, such as neurotic subjects, or those suffering from neurasthenia, hereditary or acquired.

That the proper treatment is to discover and remove any faulty habit or depressing influence at work, and to prescribe a generous diet, cheerful society and surroundings, change of air, and nervine tonics, such as iron, strychnine, and arsenic with the bromides, the latter being prescribed with care and in small doses.

That attention should be paid to the dwelling-rooms, and that they should be as cheerful as possible.

That cases of neurasthenia should not be pooh-poohed, but should be carefully and systematically treated, as thereby much suffering and insanity may be prevented.

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## SHORTENING OF FEMUR FROM EPIPHYSIAL INFLAMMATION.

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THE study of the effect of local irritation or destruction of osseous tissue upon the subsequent growth of bone has, in late years, attracted much attention, and to Ollier, of Lyons, more than to any other surgeon, we are indebted for thorough experimental research and exact clinical data on this important subject.

Knowledge of this character is chiefly of prognostic value, and until these researches were available there was nothing of a positive nature upon which to base an opinion.

The great advantage of such exact pathological knowledge is appreciated when we undertake the study of an obscure bone case such as presented itself recently at the Orthopædic Clinic of Professor Willard,

through whose kindness, and the courtesy of Dr. Millikin, I now report it.

The case was that of a boy of eight years, whose right femur was two inches shorter than the left, and whose history, upon close study, presented several etiological factors of great interest.

There was no history of nervous disease or deformity, and the family history was good. Both parents are living and healthy, the patient being the second of four children, each of whom has developed soon after birth what was believed to be *icterus neonatorum*. The disease in this child began on the seventeenth day after birth with intense jaundice. Three days later a small abscess formed on the back of the left hand, followed shortly after by one in front of the elbow-joint which communicated with the articular cavity. Later, abscesses formed on the inner aspect of the right thigh, at the junction with the perineum, and two on the outer side of the trochanter. (It is uncertain whether these last communicated with the joint, but they present the appearance of post-articular abscesses.) The abscesses were opened, and a probe was passed into the elbow-joint. Extension was made of the right lower extremity, and three weeks later the child was well and has remained so since.

On examination, Jan. 13, 1890, the right lower extremity measured in length 33 inches, the left 35 inches; the right thigh 12 inches, the left thigh 14; the right leg 11 inches, left leg 11 inches. All the joints of the lower extremity are normal in anatomical construction and functions except the right hip-joint. About this joint there is some induration, and the great trochanter is one inch behind the Roser-Nelaton line; abduction, adduction, forced flexion, and extension are normal, the foot is in a normal position, and no grating within or about the articulation could be detected on the closest examination. There is a slight atrophy of one-half inch of the adductors. The circumferences of the calves are the same. In the left elbow-joint the olecranon is slightly luxated posteriorly, but motion in this joint is perfect.

In attempting to explain this shortening of the right lower extremity four conditions presented themselves as possible causes—(1) dislocation of the hip-joint, (2) acute arthritis (osteitis) of hip-joint, (3) pyæmic arthritis from *icterus neonatorum*, and (4) septic infection, accompanied by jaundice as a symptom, and pyæmic inflammation as of the epiphysis as a sequela.

(1) The shortening of the limb and the position of the trochanter behind the Roser-Nelaton line point to dislocation as a possible cause. Dislocation of the hip-joint may occur as a congenital condition, or be post-natal the result of trauma. The labor was natural, was not a breech presentation; the mother declares that the child was perfectly normal at birth, and the subsequent history and present condition exclude the possibility of its having been a luxation. The position of the trochanter also can be satisfactorily accounted for by partial separation of the epiphysis, the ligaments being affected and the head displaced, a condition pointed out recently by Townsend.<sup>1</sup>

<sup>1</sup> AMERICAN JOURNAL OF THE MEDICAL SCIENCES, January, 1890, p. 6.

(2) Acute arthritis (osteitis) affecting the hip-joint would leave the parts in the condition found—the induration, shortening, position of the trochanter—and the abscesses point to such a lesion, but as a congenital lesion the literature on the subject, so far as accessible, does not contain a single authentic instance affecting this point, and Barwell<sup>1</sup> declares that nine months is the youngest age at which he has seen it. Certainly an acute arthritis of the hip-joint could not run its entire course in two or three weeks, as this did, and we may decide against acute arthritis.

(3) It is possible that it may have been a pyæmic arthritis resulting from the intensity of the icterus neonatorum. As pointed out by Ashby,<sup>2</sup> infantile jaundice begins on the second or third day as the result of late ligature of the cord, or patency of the ductus venosus, and is in most cases a mild affection disappearing at the close of the second week. In the severer forms of infantile jaundice in which it persists, and in jaundice in adults of the most intense character, I have been unable to find any authentic cases in which there were abscesses of the joints or large subcutaneous purulent collections as the result of the jaundice. So that, although this case might at first be considered one of icterus neonatorum occurring later than usual, and the intensity of which had resulted in pus formation, there is nothing to substantiate such an opinion. If the case were so considered, then the other cases occurring in the previous children could all be accounted for by the accepted theories of late ligature (all were attended by the same practitioner), or patency of the ductus venosus, and this case would then be considered as a more severe form of the affection, attended by abscesses and purulent arthritis.

(4) The last proposition was that it was septic infection of the newborn, accompanied by jaundice as a symptom, and epiphysial inflammation.

Until very recently, little was known of sepsis in the newborn.

Leube,<sup>3</sup> in 1878, recorded two cases, and Schützenberger and Wunderlich allude to similar cases, but it was not till 1888 that the condition was carefully defined, and an attempt was made to classify it by Dr. J. Lewis Smith.<sup>4</sup> His classification is briefly into (1) local sepsis; (2) general infection, “in which the septic poison probably entered the system through the umbilical vein,” and (3) in which the sepsis “is received in other ways or other channels than at the umbilicus.”<sup>5</sup>

In one of these cases (case iv., second series) abscesses occurred upon both legs, in the chest walls of the right mammary region, in and around

<sup>1</sup> Ashhurst's International Encyclopædia of Surgery, vol. iv. p. 349.

<sup>2</sup> London Medical Times and Gazette, April 25, 1885.

<sup>3</sup> Deutsche Archiv für klinische Medicin.

<sup>4</sup> Medical News, September 8, 1888, p. 256.

<sup>5</sup> Vide American System of Obstetrics, vol. ii. p. 724.

the metatarso-phalangeal articulation of one foot, and over both knee-joints; and at the autopsy about one ounce of pus escaped from the right knee-joint, and pus was also found in the joint of the great toe on one side. Smith considered that one of his cases was the victim of infection, with ordinary "suppurative bacteria," and with feces; and Flint<sup>1</sup> has pointed out that in the cases which recover (from pyæmia), the local effects consist chiefly of subcutaneous purulent collections and arthritic suppuration.

And here it would be profitable to distinguish in these infantile cases, as in adult cases, between those cases in which there are infectious emboli affecting the internal viscera, and those in which the *materies morbi* is some of the various forms of suppurative bacteria, in which the infection exhausts itself in superficial purulent collections and peri- and intra-arthritic suppuration, and from which cases sometimes recover.

The rule is established that abscesses occur in those cases in which thrombi cannot be demonstrated in the veins, and *vice versa*. And here a third form of septic infection might be alluded to in which septic emboli are absent, in those peculiar purulent synovitis which result from auto-absorption of morbid matters, as sequelæ of typhoid fever,<sup>2</sup> mumps, scarlatina, measles, empyema,<sup>3</sup> dysentery, gonorrhœa, and from suppression of the menstrual or leucorrhœal flow.<sup>4</sup>

In this case the condition was not one of septic arthritis resulting in destruction of the head of the bone, but in all probability the septic material localized itself at the diaphyso-epiphysial juncture, and by the virulence of the attack partially destroyed the cell activity of the cartilage, and resulted in the shortening observed. Ollier<sup>5</sup> puts the subject tersely when he says that an inflammation which brings about partial or complete destruction of the normal spongy layer, or even of the whole thickness of the cartilage by disintegration or by necrosis, will be followed by more or less marked arrest of its growth in length. As pointed out earlier by the same author,<sup>6</sup> the extremities of the long bones do not grow in length with equal rapidity, and the proximal end of the femur grows less than the distal extremity.

The growth in length of the upper end of the femur in this case was probably partially arrested, but the lower end has grown uninterruptedly, so that but two inches have been lost in these eight years of growth.

The jaundice which accompanied this case and was the first symptom

<sup>1</sup> Practice of Medicine, 4th edition, p. 87.

<sup>2</sup> Vide cases of epiphysitis from variola, quoted by Townsend, loc. cit.

<sup>3</sup> Transactions of the Pathological Society, London, 1881, vol. xxii. p. 1920.

<sup>4</sup> Ashhurst's International Encyclopædia of Surgery, vol. iv. p. 289.

<sup>5</sup> International Encyclopædia of Surgery, vol. vi. p. 881.

<sup>6</sup> Archives Générale de Médecine, tom. xii., 5e série, p. 513, 1861.

observed, was probably due to the disorganization of the blood from the septic material. Epstein<sup>1</sup> has pointed out "that septic infection is an important cause of those alterations in the blood which give rise to icterus." Indeed, jaundice has been regarded by some authorities<sup>2</sup> as a very important and characteristic symptom of pyæmia. The jaundice is a symptom of the pyæmia, and not the pyæmia the result of the jaundice.

In conclusion, we believe all the children were probably infected with septic material through the umbilical vein, resulting in jaundice as a marked symptom, and that in this child the infection was more severe, resulting in purulent arthritis of the elbow-joint, abscesses, and partial destruction of the diaphyso-epiphysial cartilage of the right femur.

In recording this case the writer has only dwelt lightly upon the subject of epiphysitis or acute suppurative arthritis of infants, about which so much of value has been written of late, and the literature of which is readily accessible, and has recorded the case simply on account of the peculiar history and the shortening of the lower extremity which resulted.

222 SOUTH SIXTEENTH ST.

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## A UNIQUE CASE OF VESICO-UTERO-VAGINAL FISTULA.

BY HENRY C. COE, M.D.,  
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AT the October meeting of the Obstetric Section of the New York Academy of Medicine I reported a successful case of suprapubic amputation of the uterus for rupture during labor (*Medical Record*, November 2, 1889). The patient was shown at the Obstetrical Society two months later, being then in perfect health with a gain of thirty pounds since the operation. I stated in my original report that she had a cervico-vesico-vaginal fistula, due to an extension of the tear through the cervix into the bladder, and that for four weeks after the operation urine issued through the abdominal wound as well as per vaginam. During the fifth week the abdominal wound closed, and from that time all the urine escaped through the lower opening. The patient was able to attend to her household duties six or eight weeks after the operation, and has been in robust health, though much annoyed by the constant dribbling of urine, which, however, was normal and caused no excoriation of the vulva. I advised her to enter the Woman's Hospital for an operation, and she was admitted on March 7th.

<sup>1</sup> Sammlung klinische Vorträge. No. 80, 1880.

<sup>2</sup> Vide Bristowe in Reynolds's System of Medicine, vol. i. p. 345.

A careful examination showed a small opening with smooth, inverted edges, which was situated to the left of the portio vaginalis in the cicatrix resulting from the cervical laceration. The portio (the only part of the uterus which was left) was small, the lips everted and much eroded. A probe could be passed through the fistula into the bladder, but not into the cervical canal; however, I had no doubt that the two communicated, as was found subsequently on injecting the bladder with milk. I saw that the case was a complicated one, not so much because the cervix was involved, as because of the fact that the opening of the ureter must lie directly in the track of the sutures.

The operation was performed three days later, the patient being under ether an hour and three-quarters. I first divided the bridge of cicatricial tissue between the fistula and the remains of the cervical canal, thus forming one large opening. The edges of the fistula were pared and the entire portio vaginalis was then excised, so that nothing but vaginal mucous membrane would be included in the sutures along the entire line of the wound. It was necessary to dissect off a good deal of cicatricial tissue along the edges of the fistula proper, since in the healing process there had occurred an *inversion* of the vaginal mucosa, instead of the usual eversion of the vesical.

The opening of the ureter was next identified in the upper edge of the fistula and was carefully located by introducing a fine probe into it. Before passing the sutures (thirteen wire and three silk) tension was still further relieved by splitting the vesico-vaginal septum to the distance of a quarter of an inch along the upper edge of the fistula. The sutures were introduced in the usual manner with considerable difficulty, the bladder was irrigated with a weak solution of carbolic acid, and a soft rubber catheter was left *in situ*.

The patient recovered from ether rapidly, but about two hours after the operation had a severe rigor, followed by a rise of temperature to  $104.5^{\circ}$ , her pulse being 140 to 150 and very feeble. She complained of severe pain in the lumbar region, and, as only six or eight ounces of urine were secreted during the next eight hours, I feared that the ureter had been included in a suture. Quinine, infusion of digitalis, and stimulants were given, hot mustard poultices were applied to the loins, and the patient's condition rapidly improved. At 8 P. M. (nine hours after the operation) she was quite comfortable, the temperature having fallen to  $101^{\circ}$  and the pulse to 120. She had a good night, the kidneys acted well, and the next morning her pulse and temperature were normal. The urine was examined, with negative results. Convalescence was uninterrupted; some of the sutures were removed on the eighth day, and the remainder on the ninth, when she was allowed to pass her urine, which she did every four hours without pain. She was up and about the third week after the operation, and was discharged March 31st, the entire wound having healed perfectly. Two or three small nodules in the vaginal roof are all that remain to mark the site of the cervix uteri.

The points of interest in the case are:

1. The manner in which the lesion occurred—from the introduction of instruments through the undilated cervix, the head not having engaged.
2. The fact that repair took place so rapidly that not only did the



vesico-abdominal fistula close within three weeks, but at the end of two months the only apparent communication between the bladder and vagina was by a pinhole opening to the left of the cervix, through which all the urine was discharged.

3. The radical character of the operation, in which I was not content to pare the edges of the divided cervix in the usual manner, but excised the portio entirely, thus removing all that remained of the uterus. The difficulty of avoiding the ureteric opening was also worthy of note.

4. The chill and rise of temperature immediately following the operation. I have been unable to find any satisfactory explanation of the phenomenon, but was impressed at the time with its resemblance to urethral fever in the male. There was absolutely no malarial element in the case. In this connection it should be stated that though I sought for some evidence from which I might decide whether the left ureter was occluded or not, I could find no definite information on this subject in any of the authorities consulted.

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#### A CASE OF ANTIPYRINE POISONING, WITH THE FORMATION OF MEMBRANES IN THE MOUTH AND SYMPTOMS OF LARYNGISMUS STRIDULUS.

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THE following case, illustrating the administration of antipyrine in small doses, with toxic effects of unusual occurrence, deserves to be recorded. The case is especially interesting, as the same symptoms occurred at three different periods following the taking of the antipyrine:

Mrs. W., æt. fifty-three, weight 212 pounds, very tall and of florid complexion; complained of pain in the loins in the region of the kidney. The pain was so severe as to make it impossible for her to lie on her back. The pulse was full and regular—about seventy-two in the minute. On cardiac examination no disease of the valves was found. The apex beat was full and bounding with a marked accentuation of the second sound. The examination of the urine gave the following result: sp. gr. 1026; reaction acid; color dark yellow; sugar none; albumin present; excess of urates. No tube-casts were found after repeated examinations under the microscope. There was no change in the amount of urine passed.

The patient had occasional periodic attacks of headache, unaccompanied by any gastric disturbance. The pain in the head was always in the frontal and parietal regions, and was very severe. A diagnosis of lithæmia with chronic contracted kidney was made. She was put on a

diet largely of fresh vegetables and milk, and all alcoholic and malt liquors were strictly prohibited. Drop doses of a one per cent. solution of trinitrin, pushed to its physiological effect, were ordered. The treatment seemed to improve the patient very much, and after two weeks she was able to lie on her back, and the pain in the region of the kidneys had entirely disappeared.

About this time the patient had an unusually severe attack of headache, and it occurred to me that the specific (?) for all headaches, especially of the lithæmic and gouty variety, antipyrine, was the indicated remedy. Accordingly, I prescribed five grains, to be taken every three hours, until the headache was relieved.

The first dose was taken about nine o'clock in the evening. Five minutes after taking the antipyrine the patient began to feel uneasy, complaining of flushes of heat, alternating with chilly sensations, principally along the spine, and in the face; the breathing became short and labored and almost immediately the lips and tongue began to swell. I was sent for in haste. On arriving I found the patient with lips swollen to almost three times their normal size; the tongue was already so swollen that it could be protruded only with the greatest difficulty. Her breathing was distressed, and very much resembled Cheyne-Stokes respiration. The pulse was quick, feeble, and irregular—about 160–168 in the minute. The temperature was 101.3°.

Spasmodic contractions of the muscles of the neck and face now commenced, but principally of the muscles of the larynx. The spasm was irregular in coming on, the intermission being from one to three minutes, and lasted about half a minute each time. During the spasm the patient would become blue in the face and would struggle for breath. Cold perspiration broke out all over the body. In the meantime the lips and tongue still continued to swell until the tongue became so swollen that it could no longer be contained in the mouth and protruded between the teeth.

I gave the patient a hypodermic of sulphate of morphine (gr.  $\frac{1}{4}$ ) and sulphate of atropine (gr.  $\frac{1}{180}$ ). The spasmodic contractions of the larynx decreased at once in both vigor and frequency, although there was still action of the muscles of the face and larynx for the next twelve hours—in fact, during the whole night. During these spasmodic contractions she lost control of the sphincters of the bladder and rectum, and urine and feces were voided involuntarily. On the following morning a reddish, elevated, erythematous eruption was noticed between the fingers and toes, in area at first no larger than a cent. There was no itching, the skin being covered with perspiration.

The patient lay in a comatose condition, being roused only with the greatest difficulty, immediately relapsing into her drowsy state when left undisturbed. The pupils were contracted to almost a pin-head in size. This contraction of the pupil could not be attributed to the hypodermic of morphine, for the pupil remained in this condition for the next six days.

There was no urine voided in the next twenty-four hours, so that it had to be drawn off with a catheter. Only about five ounces were obtained. The examination of the urine gave the following result: sp. gr. 1032; color dark red; reaction alkaline; albumin present in large amount; sugar none; sediment, urates in excess. There were no tube-casts present.

The eruption between the fingers and toes gradually became better defined and soon assumed the well-known appearance of urticaria. The eruption was also found in large blotches upon the face, neck and arms. It was evident that the eruption began to itch now, as the patient kept up an almost constant scratching.

The comatose state lasted about thirty-six hours. The patient could not talk after coming out of her stupor, probably on account of the swollen condition of her tongue (which was enormous), lips, and pharynx. The patient communicated her wishes in writing. On the third day a white false membrane began to form on the tongue, lips, and pharynx. It began by a deposit of white, round spots, which united with each other and formed a white membrane, very much resembling diphtheritic membrane. When the membrane was removed by tearing moderate bleeding set in with almost immediate reformation of the membrane. She complained very much of pain on deglutition, and it was with the greatest difficulty that she was able to take food.

The temperature ranged between  $101\frac{1}{2}^{\circ}$  and  $103\frac{1}{2}^{\circ}$ . The curious part about the temperature was, that it was always higher in the morning than in the evening, the lowest temperature usually being found between the hours of eight and twelve in the evening.

On the morning of the fourth day she began to spit up large quantities of phlegm. At first the expectoration consisted largely of mucus, but it soon changed to muco-pus, and on the fifth day large quantities of pus, tinged with blood, were ejected. From six to eight ounces were ejected during the next few days. The odor from this discharge was sickening, and all the windows and doors had to be kept open to obtain proper ventilation.

Looking into the mouth numerous abscesses varying in size, usually about as large as a chestnut, were seen in the gums, tonsils, and base of the tongue. I counted thirteen different abscesses. The pharynx and post-nasal space were very much inflamed.

The patient was in bed twenty-six days; when able to get up she was so weak that she had to be assisted in walking. She lost twenty-four pounds in weight. The fever disappeared gradually; there was less pus discharged, but the last symptom to disappear was the urticaria. Even after the last trace of urticaria itching of the skin persisted for some weeks.

She remained well for two months, gradually regaining strength. Another attack of severe headache came on, and the patient, not suspecting that the antipyrine was the cause of her last trouble, again took a five-grain powder, without my knowledge.

Precisely the same effect as with the first dose of antipyrine two months ago occurred. The flushes of heat and cold, with rapid pulse, and swelling of the lips and tongue, again occurred. The muscular contractions of the face and neck were not so marked this time.

The appearance of the urticaria was more marked than in the preceding attack. Prof. J. M. Da Costa saw her in this attack with me, and agreed that it was a case of antipyrine poisoning. The attack lasted sixteen days. The patient lost six pounds in weight. There was also in this attack an increase of albumin in the urine.

Three months later another attack took place, precisely similar to the preceding ones. This attack again followed the taking of antipyrine by

the patient for her headache. The symptoms were all milder, except the contractions of the muscles of the neck and larynx. These contractions had to be again controlled by administering a hypodermic of morphine and atropine. The eruption of urticaria between the fingers and toes was very marked. The patient was well again in ten days.

All the symptoms which this remarkable case exhibited have been noted before in instances of antipyrine poisoning, except the formation of the whitish-yellow membrane on the tongue, lips, and pharynx, and the multiple abscesses. To account for these would be a very difficult matter, except as a manifestation of sepsis. Urticaria has often been mentioned as occurring in cases of antipyrine poisoning, and it was this symptom more than any other which called my attention to the correct diagnosis of the case. The swelling of the lips and tongue is not a very usual symptom, still it has been noted in several instances.

Dr. Oscar Jennings, in the *Lancet*, 1888, reports a case of antipyrine poisoning characterized by swelling of the lips and tongue, so that for six hours his patient was in danger of suffocation. All of the other symptoms noticed in my case were present, except the formation of the membrane on the lips and tongue and the abscesses.

The patient whose case has just been narrated takes antifebrin, exalgin, and phenacetin with perfect freedom from attacks of the kind just described. In fact, phenacetin is the drug on which she now relies when her periodical headache occurs.

This case is certainly a warning against the indiscriminate use of antipyrine, especially by the laity. A drug which can produce such symptoms as those just enumerated is entirely too dangerous to be dispensed over the counter by druggists and other unauthorized persons.

## REVIEWS.

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### INJURIES AND DISEASES OF NERVES, AND THEIR SURGICAL TREATMENT.

By ANTHONY A. BOWLBY, F.R.C.S., Surgical Registrar and Demonstrator of Practical Surgery and of Surgical Pathology at St. Bartholomew's Hospital, etc. 8vo., pp. xii., 510. Philadelphia: P. Blakiston Son & Co., 1890.

As house surgeon of St. Bartholomew's Hospital, and later as its surgical registrar, Mr. Bowlby has had during the past ten years ample surgical material at his command, and has paid careful attention to a branch of surgery which has not been attracting very much notice of late. As a recognition of the value of his studies upon the surgery of nerves he has been awarded two prizes: the Jacksonian Prize Essay of the Royal College of Surgeons in 1882, and the Astley Cooper Prize Essay in 1886; and he was invited to deliver a course of lectures at the Royal College of Surgeons in 1887. In the present volume the material upon which the essays and lectures were based has been brought together and added to, the more mature conclusions which come of wider experience have been formulated, and the result of the clinical work in its practical application to the surgical treatment of nerve injuries has been put before the profession. Mr. Bowlby has the power of presenting his facts and conclusions in an attractive manner, his style being pure, terse, and interesting; he is familiar with the literature as well as the clinical side of his subject, and his publishers have spared no expense in providing a well-printed and fully illustrated volume, the admirable figures adding greatly to the value of the text. The result is a book which should be in the library of every surgeon and of every neurologist, and should be consulted by all who desire to obtain information on the subject with which it deals.

Although in his preface the author says: "I have found the work of Dr. Weir Mitchell on *Injuries of the Nerves*, published in 1872, so full of accurate observation, and so complete in its realistic descriptions, that after the lapse of seventeen years there is but little of value to add to those parts of the subject he has made so peculiarly his own;" he has added very much, both to the clinical study and to the treatment of this branch of surgery, for much has been learned during this time which deserved to be brought into an accessible form.

The first part of the work includes chapters on the anatomy and physiology of nerves, on the changes in nerves after section, their degeneration and repair, their union by first intention (of which the author gives several cases, while admitting that it is rare for such union to occur), and on the trophic changes caused by nerve injuries. On the question of trophic nerves the author says:

"I think, therefore, that it may safely be assumed that nerves do exist which exert a direct trophic influence upon the tissues, and that the currents

which convey the same are constantly passing. The only question that remains to be considered is, whether the existence of special nerve fibres is necessary for the conveyance of trophic impulses, or whether the ordinary sensory and motor tracts suffice. It has been shown that there is nothing incongruous in the idea that any given nerve fibre can convey currents either centripetally or centrifugally, so that there is no ostensible reason why the nerves of motion and sensation should not be amply sufficient for the purpose. And considering that trophic disturbances very rarely, if ever, occur without some interference with the sensory and motor functions, there is a strong probability that the same fibres are capable of conveying the different impulses which are generated in the centres." (Page 60.)

He then takes up the symptoms of nerve injuries in general, and proceeds to discuss in the following chapter injuries of special nerves. Particular attention is paid to the exact distribution of the paralysis and to the deformity resulting; though, as the author shows, a satisfactory explanation of the malpositions is not easy; and to the areas of anæsthesia and partial anæsthesia produced in each case. It is unfortunate that illustrations of cases of injury of the nerves of the lower extremity should not have been included among the figures, for those showing the effects of division of the ulnar and median nerves are very satisfactory, and such figures tell more than verbal description.

In the discussion of injuries of the sympathetic nerve in the neck no reference is made to the valuable observations of Möbius—made in 1884—and it must be noticed that few of the references given by the author are very recent.

The chapters on the treatment of cases of nerve section and of nerve injury by primary and secondary suture are of the greatest interest. Mr. Bowlby has followed up his cases carefully and is impressed with the necessity of the operation of suture and with the very favorable results of this operation:

"Judging by accounts published by various authors, and by my own observations, I can have no doubt but that in the vast majority of untreated nerve wounds, either no union at all, or but a most imperfect one, can be expected." (Page 126.)

"I have no doubt—and I shall hope to adduce the proof—that the operation of nerve suture is absolutely harmless; that when the nerve ends are carefully sutured and maintained in apposition, a restoration of function is the most frequent result." (Page 127.)

In primary suture he recommends the passage of the suture completely through the nerve trunk at right angles to its long axis, a quarter of an inch from the end, and in large trunks a second suture at right angles to the first. These should be drawn tight until the opposing surfaces are brought into contact, and if the trunk is a large one the sheath should also be stitched at the divided point. Catgut is used unless tension is great, when chromicized catgut is preferred. The limb is fixed in a splint in such a position as to keep the nerve at least tension. Twenty-seven cases of primary suture are described; fifteen successful, eight partially successful, four were failures. In two of these primary union occurred.

"If there is one fact more than another which stands out in the clinical histories of the patients who have been under my own observation, it is that, after failure of union by first intention, after trophic changes of many kinds, after complete atrophy and degeneration of the paralyzed muscles, recovery may yet be complete. Time is the great requisite in these cases." (Page 155.)

Cases are related of recovery after six months, and even after three years. Hence, the prognosis is favorable as to eventual recovery.

In secondary suture the bulbous extremity should be cut through close to the normal trunk, as at this point there are numerous young nerve fibres and the tough tissue gives a hold to the suture; the extreme end of the lower nerve should be cut off, but there can be no good done by cutting off successive sections in the hope that the cut surface may look healthy since the entire nerve is degenerated. These ends are to be united as in primary suture—the nerves being stretched somewhat if necessary. When they cannot be approximated sufficiently the upper end may be split and a part turned down by way of a graft or the transplantation of a portion of a nerve to fill the gap (as has been successfully done by Mr. Robson, of London, in one case) may be performed. The recommendation of the latter plan in preference to placing the ends in a tube of decalcified bone seems to rest on too slight a basis.

Some chapters are given to injuries of nerves without external wound, and it is recommended that when spontaneous recovery does not soon ensue the nerve be cut down upon, and if torn, the ends be united.

The complications of nerve injuries, such as neuritis, causalgia, glossy skin, etc., are fully detailed, but the author very rightly doubts the existence of myelitis as a sequel of nerve injury: "The actual lesion requires still the support of post-mortem evidence." In regard to the mechanism of reflex paralysis, he seems to be in doubt, though he admits that it may occur. To one who is somewhat incredulous as to the existence of this disease this chapter will not be satisfactory. In view of the prevailing tendency to regard so-called reflex paralysis as hysterical in character, and really a traumatic neurosis rather than a true spinal affection, the absence of all allusion to the recent French opinions is to be regretted.

The operations and indications for nerve-stretching and nerve-division receive due attention.

The chapter on multiple neuritis is hastily written and very incomplete. The book closes with a summary of what is known of neuroma.

The author deserves high commendation for the clear statements, careful observations, and painstaking research displayed throughout the volume.

M. A. S.

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A HANDBOOK OF DISEASES OF WOMEN, INCLUDING DISEASES OF THE BLADDER AND URETHRA. By DR. F. WINCKEL, Professor of Gynecology and Director of the Royal University Clinic for Women in Munich. AUTHORIZED TRANSLATION, edited by THEOPHILUS PARVIN, M.D., Professor of Obstetrics and Diseases of Women and Children in Jefferson Medical College, Philadelphia. Second edition, revised and enlarged, with 150 illustrations. 12mo., pp. 766. Philadelphia: P. Blakiston, Son & Co., 1889.

THIS second American edition of a standard work on the diseases of women does not differ materially from the first, except in the addition of a chapter on diseases of the bladder and urethra, which is based

upon Winckel's monograph upon that subject. The popularity of the work is shown by the rapidity with which the first edition was exhausted. There is, perhaps, no more scholarly or influential authority upon gynecological subjects among our German *confrères* than Winckel, and this fact, added to the respect and esteem in which his American editor is universally held, may serve to explain the early demand for a second edition in advance of a second German edition.

Amid the many merits of the work there are some statements with which we cannot altogether agree, though most of these are of minor importance. In respect to the use of silkworm-gut sutures, which it is said may be left *in situ* for weeks without disadvantage, we would beg to differ in opinion. We have found that they tend to become buried in the tissues and set up most annoying irritation. We can recall at least two cases in which the results were very mischievous, and hence believe that if such sutures are used at all, they should be removed at the earliest practicable moment.

In the light of present experience we believe that exaggerated importance is given by the author to the subject of uterine displacements. The work of Schultze in this direction receives unqualified approval from the author, and his theories are recommended. Without wishing to detract from the merits of Schultze's work, we think his classification is unnecessarily minute, his views as to the normally posed and anteriorly displaced uterus do not coincide with experience in this country, and his method of releasing the retroflexed and adherent uterus is one which we cannot consider as either easy of performance or free from danger.

Nothing is said of the great merit of Hodge in introducing the simplest and most efficient form of pessary which has ever been offered. Originality is denied to Sims in the introduction of the duck-bill speculum, which has done more toward facilitating the surgery of the vagina and uterus than any other single agency.

Some of the plates representing pathological conditions are lacking in clearness and definiteness. It is possible that they may have been reproduced from photographs, but even if this were so, the fact remains that they must be carefully studied in order to give one a correct idea of the existing relations. The best pictures are those which show at a glance the purpose for which they were intended, and there are such.

We cannot agree with the remark on page 365: "The fact that septicæmia is an uncommon complication of cancer of the womb will be understood when we remember that the infiltration of the adjoining tissues and the inflammation which follows tend to close the diseased tissue and thus form a barrier to the absorption of putrid material;" nor with that on page 367, that twenty-five per cent. of patients with cancer of the uterus die from peritonitis. If, as is remarked, also on page 367, forty-five per cent. of such patients die from uræmia, it would seem that there would be abundant opportunity for the absorption of septic material. Lancereaux pointed out several years ago that in all cases of advanced carcinoma uteri the kidneys were extensively diseased. This we have been enabled to verify in a considerable number of autopsies upon patients dying with this disease. It therefore seems to us that septicæmia must be looked upon as a very common concomitant of advanced cancerous disease of the uterus, and that this is chiefly owing to the imperfect functional power of the kidneys.

The chapters on disease of the Fallopian tubes are disproportionately



meagre, in view of the great volume of recent literature upon the subject. Very unfavorable opinions are expressed concerning the Battey-Hegar and Alexander operations, with which we cannot agree.

A novel feature is furnished by the chapters on diseases of the mammary gland. They are not generally discussed in works of this character, but we have always been of the opinion that their consideration was quite as appropriate as that of any other portion of the genital apparatus, of which they form an essential element.

A. F. C.

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INTERNATIONALER ATLAS SELTENER HAUTKRANKHEITEN. INTERNATIONAL ATLAS OF RARE SKIN DISEASES. ATLAS INTERNATIONAL DES MALADIES RARES DE LA PEAU. HERAUSGEBER-EDITORS-EDITEURS: P. G. UNNA, HAMBURG; MALCOLM MORRIS, LONDON; L. A. DUHRING, PHILADELPHIA; H. LOLOIR, LILLE. [I.] Hamburg und Leipzig, Leopold Voss; London, H. K. Lewis; Paris, G. Masson, 1889.

ADVANCE sheets of the first number of this serial publication were shown to the members of the International Congress of Dermatology and Syphilography, which met in Paris during the month of August, 1889. The result was a promise of such support as to justify the prosecution of a work which must depend largely for its success on the favor of the dermatological experts of the world.

Of the three papers here presented, each by one of the corps of editors, not the least interesting and valuable is that which follows in order the other two, viz., by Leloir, on "Semi-sclerotic Lupus of the Tongue." The history is very briefly given of a young woman with typical tubercles of lupus vulgaris displayed upon and about the nose, lip, cheeks, palate, and elsewhere. The dorsal surface of the tongue is thickly set along the median raphé, with numerous, smooth, opalescent nodules of the sort elsewhere recognized upon the mucous surfaces. A history of syphilis is carefully excluded by record, and even by the "touch-stone" of specific treatment. Several distinct series of tubercles were then artificially induced by inoculating portions of the lupous nodules obtained from this patient in both rabbits and guinea-pigs. Upon a single sheet are here admirably represented, so as to be seen at a single glance, the typical facies of the patient with the classical nose, *en bec de perroquet*; the tongue of full size separately; as also the uvula, portion of the gum, and larynx; the tuberculous lung and spleen of a guinea-pig after inoculation; a tubercular nodule from the abdominal wall of another guinea-pig; and well-executed sections of the lingual tubercles, displaying giant cells in fibrous alveolæ, and characteristic tubercle bacilli stained after the method of Ehrlich. It would be certainly difficult to give in the same space a more concisely expressed clinical history, and a more graphic picture of the etiological relations of lupus and tuberculosis than are here presented to the reader.

Unna's paper, the second in order, is entitled "Ulerythema Acneiforme," and is illustrated by five photogravures, reproducing the gross portraiture, and four the microscopical appearances after section of the tissue in certain odd-looking patches of disease appearing in the cheeks

and on the ears of a young girl. The paper would scarcely be recognized as coming from the pen of this author if it had not an odd title and some suggestion of an unusual nomenclature. American readers and writers who attach definite meaning to their words, may be at a loss to understand whether or not the author is in earnest when talking of "inflammatory erythema," and *narbenerytheme* (cicatricial erythema); but we can make allowance for those who as yet have not joined the ranks of the increasing number who have agreed that, till the advances in all directions have set their feet on surer ground, they will not confuse the world further by new nomenclatures or fresh systems of classification. The author's differential diagnosis of his new disease from acne vulgaris is by no means in all points as complete as is required to insure the fullest acceptance of his views. His case is unquestionably one of marked interest, but by no means unique in the production of atrophy of the sebaceous glands without a precursory suppuration, and in the deeply pitted, so-called "worm-eaten" appearance. In point of fact, there is always an element of danger in publishing details of unique cases under new names, as a wide publicity tends sooner or later to such careful analyses of the facts which will insure their tabulation in recognized categories. But Unna is always interesting, if not exact; and though his sections are much less beautifully illustrated than those of Leloir, allowance must be made for the differences in the method of working the stone plate.

The first article, in order only, is a sketch of a case of lymphangioma circumscriptum, by Mr. Malcolm Morris, illustrated by the admirable colored lithographs reproduced from Mr. Hutchinson's plates. The author states that all the cases of this disease, Kobner's alone excepted, have been published by Englishmen, and is, therefore, probably not aware that before these words were penned Bryk had reported a similar case (in the *Archiv. f. klin. Chir.*); while Graham, of Canada, though an English citizen, had published the report of a similar case presented to the American Dermatological Association, illustrated by a wood-cut of the clinical appearances, the reading of which elicited the report of a similar case from the experience of Dr. Atkinson, of Baltimore.

The *International Atlas* is, in its typography and illustrations, a superb example of the best and latest accomplishments of the press; and deserves well of the educated class to which it appeals by the high quality of its scientific work. It is, perhaps, somewhat to be regretted that so much space should be given to a reproduction of each article in two languages besides that of the author, each paper appearing in both the English, French, and German text. To the larger number, by far, of those whom it will reach, certainly a reading knowledge of those tongues would render any one of these three an intelligent medium. But doubtless the editors carefully pondered their course before determining these details of their work. The system adopted will certainly commend itself to the French, many of whom are quite unfamiliar with another language than their own; while the Germans, who have uniformly shown themselves the most polyglottic of foreign physicians in international meetings, will scarcely need to avail themselves of the aid here furnished. The most delightful of the limitations thus imposed upon writers for these pages is the imperative necessity of brevity and conciseness. Every word of each contributor must be printed in triplicate. What an incentive, even from the low level of the purse, to tell

the truth only, and to tell it in the fewest words. If every English and American author had a French and German drag upon his plausible pen, how much good might follow.

The *International Atlas* is cordially commended to the profession in America for its value to the careful diagnostician. J. N. H.

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CLINICAL LECTURES ON SOME OBSCURE DISEASES OF THE ABDOMEN. DELIVERED AT THE LONDON HOSPITAL BY SAMUEL FENWICK, M.D., Fellow of the Royal College of Physicians, Physician to the London Hospital. 8vo., pp. vi., 252. London: J. & A. Churchill, 1889.

THE affections treated of in these admirable lectures, are of great importance, and the obscurity which attends their diagnosis makes each case an object of special anxiety and individual study to the attending physician. For that reason all the information which can be obtained in relation to them is of value; and the rich experience of so competent an observer as Fenwick must be of peculiar interest.

Perforation of the appendix vermiformis cæci, stricture of the ileo-cæcal valve, fecal abscess, fecal abscess connected with the small intestine, perinephritic abscess, gastric and peri-gastric abscesses, tubercular peritonitis in the adult, cancer of the peritoneum, and hydatids of the peritoneum, are the subjects of the nine lectures here collected. Each of these subjects, says the author, marks some difficulty he had himself experienced or some mistake he had committed. The conclusions at which he has arrived are based chiefly on cases noted in the books of the London Hospital, but where the numbers of these seemed to be insufficient for the purpose, he has had recourse to observations recorded by others. In collecting his data, the post-mortem registers of the Hospital from 1839 to 1883 were thoroughly gone over and every case bearing upon the subjects above named carefully copied. The brilliant success of ovarian surgery has, in the author's opinion, led some to undervalue the ill effects likely to arise from operations upon the peritoneum, and thus to look upon the careful consideration of a case of abdominal tumor as unnecessary, under the idea that an exploratory incision will safely settle all doubts respecting it. Others, on the contrary, still view with undue timidity any operation on the abdomen, and are, in consequence, inclined to delay the adoption of measures, on the prompt execution of which the life of the patient may depend. To both classes Fenwick's studies will undoubtedly be, as he hopes, useful in assisting to define cases in which surgical procedures are most likely to prove beneficial.

The great attention paid of recent years in this country, to pathological processes affecting the appendix makes the lecture upon that subject seem somewhat behind the most recent state of professional opinion; and especially from a surgical point of view.

Concerning diagnosis, the chief points to be borne in mind are the suddenness of the attack of severe pain in a person previously in good health, more or less rapid supervention of peritonitis, increased tension and tenderness in the right iliac fossa and in the hypogastrium, dimin-

ished resonance on percussion, often attended by a gurgling noise, and in some cases the presence of a tumor in the pelvis, ascertained by an examination made by the rectum. Liability to mistaken diagnosis exists in cases of intussusception, but the pain in the latter is more colicky and intermittent, vomiting and constipation more severe, the tumor better defined, and there is almost always hemorrhage or passing of blood and mucus; while there is an absence of the tension and tenderness, of dulness and gurgle as in perforation of the appendix. Typhlitis differs from the ordinary cases of perforation of the appendix in its more gradual onset; in the comparatively trifling pain, tenderness, and constitutional disturbance; in the absence of frequent vomiting; and in the better definition of the tumor; but where perforation has taken place in an appendix situated close to or behind the cæcum, it may be impossible to distinguish between it and ulceration commencing in the cæcum itself. The latter, however, is very rare, except in phthisical subjects. Fenwick advises that whenever the tumor in a case of typhlitis is very slow in disappearing, we should suspect perforation of the appendix. There is a form of acute tubercular peritonitis which may be confounded with perforation of the appendix, the points of distinction being the more gradual onset of the disease, the more general pain and tenderness and general diffusion of the abdominal signs, the urgent diarrhœa, and in most cases some signs of pulmonary consolidation. The absence of tumor in the iliac region or in front of the rectum is the chief point. Two instances of hospital cases, one of inflammation of the connective tissue of the pelvis, the other of retro-uterine hæmatocele, are cited, in which a doubt might have arisen.

The author believes that if there is a reasonable suspicion of the presence of pus, it is proper that the site of the appendix should be explored by an incision. If the symptoms are not very urgent he believes that it will be found advisable to keep the bowels moderately open by mild aperients, to regulate the diet, and support the lower part of the abdomen with a well-fitting bandage. While not undervaluing the results of purely medicinal treatment in some apparently desperate cases, the reviewer believes that the recent experience of American surgeons indicates the value of operative interference either during the attack or after apparent recovery, in a certain proportion even of those cases of appendicitis in which abscess or perforation has not occurred. Most certainly is operation indicated in cases of recurring attacks.

Stricture of the ileo-cæcal valve is a rare affection and one quite difficult of diagnosis. The author details three cases observed by him, in all of which the movements of the small intestine were distinctly visible through the abdominal walls, and in 7 out of 16 cases which he has collected, particular mention is made of this circumstance. He agrees with Dr. Hilton Fagge that this is a sign of hypertrophy of the muscular coat, analogous to a corresponding hypertrophy of the cardiac muscle in cases of valvular obstruction.

The disease occurs most commonly in females between the ages of twenty and forty. The most prominent symptoms are the frequent attacks of colicky pain attended with severe constipation and vomiting. Of the three cases observed by the author, in none was the communication between the ileum and the cæcum completely closed. In the first there were two or three small openings. In the second a quill could be passed. In the third the valve admitted the point of the finger. There

was, therefore, nothing that was necessarily fatal; and he can only attribute their unfortunate terminations to the great and long-continued distention of the intestines, and the effects of this upon the nervous and vascular systems. In any future case of this kind, the author would advise, first, placing the patient on a milk diet and relieving the pain by sedatives. In case this treatment should fail it would be necessary to consider the advisability of operating to find the cause of the obstruction. Relief might be afforded by making an artificial opening in the small intestine near the cæcum. In view of the recent researches of Senn and others, the performance of the operation for lateral anastomosis seems to the reviewer to afford a better prospect.

One of the most important lectures is that upon gastric and peri-gastric abscesses. The author differs from the opinion of Leube that sudden symptoms pointing to suppuration are present in cases of gastric abscess, for in none of the cases which he has seen were there any symptoms pointing to any change in the condition of the patient that would lead to suspicion of abscess of such an important organ. In peri-gastric abscess, on the other hand, except where it occurs in persons affected with phthisis, cancer, or some other exhausting disease, the first formation of an abscess will be accompanied either by collapse and signs of general peritonitis or by sudden and severe pain of the epigastrium, attended with indications of local peritonitis. This article, as well as others, is illustrated with valuable diagrams showing the location of physical signs both in the affections discussed and in the diseases with which they might be confounded.

Space prevents further reference to the many instructive points contained in this valuable work.

S. S. C.

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INSOMNIA AND ITS THERAPEUTICS. By A. W. MACFARLANE, M.D., F.R.C.P. Edin., F.R.M.C.S. Lond., Examiner in Medical Jurisprudence in the University of Glasgow, etc. 8vo., pp. xv., 366. London: H. K. Lewis, 1890.

AMONG the numerous monographs upon insomnia this deserves to hold a very high place. It contains a careful and exhaustive review of what is known about sleep and its disturbance, and is particularly full and satisfactory in its therapeutic suggestions.

In the introductory chapter the physiology of sleep is discussed and the various theories offered as to the cause of sleep are mentioned. The author shows that changes in the cerebral circulation are usually attendant upon sleep, quoting the recent investigations of Mosso on this subject. But while admitting that the blood supply in the brain is diminished in slumber, and that slight anæmia of the brain is conducive to sleep, he thinks the cause of sleep is not to be found solely in the diminished cerebral vascular supply. He alludes to the removal of waste products from the brain in sleep, to the need of an increased oxygen supply to the brain for its recuperation from fatigue during slumber, and concludes that each of these factors may have an influence in the production of sleep, while no one of them can be accepted as settling the problem.

Going on to the subject of insomnia, the author discusses fully the conditions which produce sleeplessness, basing his statements upon a careful analysis of two hundred and seventy-three cases. He finds that neurasthenia, worry, gout, overwork, the menopause, dyspepsia, alcoholism, and senility are the most frequent causes, accounting for sixty-seven per cent. of the cases.

He very wisely says that insomnia is not a disease, but a symptom of many diseases, differing widely in their nature and complexity as well as gravity; and thus by attempting to reach the cause his treatment is directed to it rather than to the effect.

"The diseases enumerated as causes of active and passive congestion and anemia of the brain, as well as the conditions giving rise to alterations in the vascular tension, etc., will, if carefully scanned, be seen to correspond, with wonderful exactness, to a list of the diseases which give rise to insomnia. It is not for a moment alleged that the list is by any means complete, or that insomnia depends solely upon these vascular derangements, brought about, in some cases, by the influence of the brain and nervous system; but these considerations go some way in the direction of a natural explanation of the causation of insomnia." (Page 48.)

After discussing the varying needs of sleep of people of different ages and various temperaments and modes of life, he says that, in his opinion—

"Quite a half of the cases popularly known as functional insomnia are due to an inherent instability in the cerebral textures which renders them vulnerable, and liable to be impressed unfavorably by circumstances incident to various stages of life; in short, prone to break down under the strain of the wear and tear of every-day life." (Page 63.)

He gives many valuable suggestions in a section (pp. 69-77) on the conditions favorable for sleep, and insists on the importance of (1) the quiescence of excitability and activity in the psychical centres; (2) the diminution and tranquillization of the cerebral blood supply; (3) the modification of the quality of the blood.

Each of the various causes of insomnia is then taken up in a chapter by itself, and much very admirable advice is given regarding the treatment of the affections of the nervous system producing insomnia. In fact, this section (pp. 78-136) constitutes an admirable monograph upon the treatment of nervous exhaustion, and alone suffices to commend the book to the general practitioner. The author happily avoids the danger—into which others who have written on this subject have run—of recommending medicinal treatment of sleeplessness indiscriminately; and while he gives full credit to the various hypnotics, especially to paraldehyde and sulphonal, bromides and chloral, he details many general therapeutic measures, such as food, massage, baths, douches, warm applications, exercise, and stimulants, which are often sufficient to combat the insomnia of nervous exhaustion without the aid of drugs. For those who need explicit direction formulæ are given.

The chapter which follows contains an interesting review of the effects of stimulants—especially of tea—in producing insomnia. Then follows a discussion of gastro-intestinal derangements as causes of sleeplessness. The author says:

"The analysis of insomnia from this cause is so intimately and inextricably associated with the whole question of digestion, that at the risk of appearing

to digress from the subject immediately under consideration, it is proposed to view some points bearing upon the physiology and pathology of the processes of digestion. This is the more called for when we reflect that it is only by unravelling the nature of the disorder, and by instituting a well-matured plan of treatment for its rectification, that the sleep disturbances—its symptoms—can be successfully alleviated. To attempt to deal with such cases by means of hypnotics and narcotics, the majority of which tend to derange the secretions, is worse than useless. It is to court failure and to aggravate the evil." (Page 188.)

The therapeutic suggestions regarding these diseases form a very valuable part of the book.

Then the sleeplessness observed in cardiac respiratory and general febrile diseases are considered. The last chapter deals with insomnia peculiar to females, and in an appendix hydrotherapy in insomnia is briefly summarized.

The book as a whole is a most valuable addition to therapeutic literature, being full of information upon many topics outside of its apparent subject and yet having a bearing upon it. It will prove a help to every practitioner to have it in his library.

M. A. S.

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**MANUAL OF SKIN DISEASES, WITH SPECIAL REFERENCE TO DIAGNOSIS AND TREATMENT. FOR THE USE OF STUDENTS AND GENERAL PRACTITIONERS.** By W. A. HARDAWAY, M.D., Professor of Skin Diseases in the Missouri Medical College, and in the St. Louis Post-Graduate School of Medicine, etc. 12mo., pp. viii., 434. St. Louis: Theo. F. Lange, 1890.

In this handbook the author has succeeded in presenting the various diseases, especially as regards diagnosis and treatment, in a clear and intelligible manner, and stripped of all unnecessary and superfluous verbiage. As introductory matter symptomatology and general observations on etiology, diagnosis, and treatment are briefly referred to. The individual diseases follow, and are arranged in alphabetical order. While this plan of presenting the subject is not, strictly speaking, scientific, it has, for books of this size, certain evident advantages, and moreover probably has justification in the fact that constant changes are taking place in the classification of skin diseases from time to time. The directions as to treatment are understandingly given, this part of the text being almost as full as that found in the larger treatises. It embodies the suggestions of all the leading specialists, but contains throughout a strong vein of personal experience, which, when emanating from so careful an observer as Dr. Hardaway, is always valuable.

The author's work deserves better paper, better press-work and a more inviting general appearance than the publisher has given it. H. W. S.

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**FOOD IN HEALTH AND DISEASE.** By I. BURNES YEO, M.D., F.R.C.P., Professor of Clinical Therapeutics in King's College, London, and Physician to King's College Hospital. Philadelphia: Lea Brothers & Co., 1890.

THE subject of food in relation to health and disease is one of great complexity. In a scientific sense, comparatively little is known con-

cerning the intimate influence of food on the body. While it is true that a great diversity of food is in use by the various inhabitants of the globe, it must still be remembered that, on account of the universal likeness of the human constitution, there must be certain kinds of food which best subserve the aims and purposes of the highest form of civilization. No less than this is demanded by the law of utility. The Chinaman lives on his rice, the Esquimau on his blubber, and the Arabian on an exclusively nitrogenous animal diet; yet the Caucasian, who lives on a mixture of animal and vegetable food, has raised himself, physically, intellectually, and morally, far above his competitors. Other factors were unquestionably instrumental in bringing about the latter's exalted position, but it is enough for us to know that such a diet gives vigor, and a power of endurance which is unrivalled. If it is true that a certain system of feeding gives better results in health than any other, it is also true that the same principle applies in disease. Dr. Yeo believes this, and he has given us the evidence for this faith in the little volume before us. In it he discusses the nature, the origin, the purpose, the nutritive value of animal and vegetable food in all conditions of health, after which he gives the dietetic treatment of acute disease and convalescence, of disease of the digestive organs, of diabetes, of albuminuria, of gout, of consumption, etc., and ends up with a chapter on artificial digestive agents and on artificial feeding. The book is concise and practical, and is a most valuable addition to the list of our works on dietetics.

T. J. M.

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ON THE GEOGRAPHICAL DISTRIBUTION OF SOME TROPICAL DISEASES AND THEIR RELATION TO PHYSICAL PHENOMENA. By R. W. FELKIN, M.D., F.R.S.E., F.R.G.S., Lecturer on Diseases of the Tropics and Climatology, School of Medicine, Edinburgh. With sixteen maps, reprinted from the Proceedings of the Royal Society of Edinburgh. 8vo., pp. 54. Edinburgh and London: Young J. Pentland, 1890.

THE diseases considered in this brochure are malarial diseases, dengue, Asiatic cholera, yellow fever, Oriental sore or boil, endemic hæmaturia, beri-beri, Oriental plague, dysentery, leprosy, yaws, fungus disease of India, elephantiasis Arabum, Guinea worm, filaria sanguinis hominis, scurvy, and tropical abscess of the liver.

The plan of the work includes first a brief description of the particular disease studied, and then detailed consideration of its geographical distribution and its relation to various physical phenomena believed to have a bearing upon its causation, area, and epidemic spread.

In regard to the data of the distribution of the maladies considered, the author is indebted for his principal facts to the *Handbook of Geographical and Historical Pathology*, by Dr. August Hirsch; but this information has been verified and supplemented by his own researches.

The maps, which have been carefully prepared, were obtained from various learned sources. A glance at these maps graphically shows the area of prevalence of the diseases spoken of, and their comparative virulence in different regions.

The industry of the author in their preparation is to be commended, and his work will doubtless afford valuable assistance in future studies.

S. S. C.



# PROGRESS OF MEDICAL SCIENCE.

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## THERAPEUTICS.

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UNDER THE CHARGE OF  
FRANCIS H. WILLIAMS, M.D.,  
ASSISTANT PROFESSOR OF THERAPEUTICS IN HARVARD UNIVERSITY.

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### ETHER AND CHLOROFORM.

"Ether and Chloroform" is the title of a recent article by DR. J. R. COMTE, Surgeon of the Hôpital Cantonal of Geneva. This writer, it will be remembered, published, in 1882, in a thesis, a carefully compiled statistical list of all deaths under the anæsthetics recorded in medical literature up to that date. He is a believer in the superior safety of ether, and his article is a reply to one by Dr. Kappeler entitled "*Chloroform versus Ether.*"

He prefaces his remarks by the statement that, in his opinion, an ideally perfect anæsthetic never will be found, meaning by that term one which intoxicates to the extent of prolonged unconsciousness and relaxation of the voluntary muscles, and does so with absolute safety. Since, then, *danger* is unavoidable in the administration of anæsthesia as it is performed *to-day*, the various elements which constitute that danger are subjected to a careful analysis for purposes of instruction. They are discussed in the following order: Clinical dangers in the process of administration of anæsthetic fumes; contraindications to the use of either or both of the agents of anæsthesia; dangers that may be inferred from a study of the author's mortuary statistics and the reports of autopsies, and, finally, inferences that may be drawn from experiments on animals made in physiological laboratories. From the consideration of these elements the following conclusions are made, and it is much to be regretted that the limits of this article do not permit us to follow the careful analysis by which they were reached by the author:

1. Anæsthesia can be obtained with ether as well as with chloroform, without using excessively large quantities or excluding atmospheric air.

2. The rapid method of forcing a cone holding twice the ordinary amount of ether down on the patient's face, so as to produce insensibility in two minutes, should be discarded, because it is intensely disagreeable, if not dangerous.

3. The inconveniences attending the use of these anæsthetics are about the same for both—that is to say, the disagreeable odor, the vomiting during the inhalation and afterward, the mental depression and malaise following the return to consciousness, etc.

4. The stage of excitement is neither longer nor more violent with ether than with chloroform; violent struggling should only occur in the intemperate. It is against ether that patients are at times excited and hilarious while regaining consciousness, and in some women hysterical manifestations come on at this time.

5. Contraindications to the use of ether are less numerous than chloroformists would have us believe. They may be narrowed down to the acute inflammatory affections of the respiratory tract, and all conditions of laryngeal and tracheal stenosis; it is also contraindicated whenever it is necessary to use the thermo-cautery on the head or its vicinity, or to operate in a small room near an open fire. The danger arising from the inflammability of the fumes may be materially decreased by certain precautions.

6. With these exceptions, ether deserves preference for all operations, particularly for dental surgery, the reduction of dislocations, and in all cases where anæsthesia must be maintained for a long time.

7. The method used by Kocher of producing insensibility with chloroform, and then giving ether for the rest of the time, has little to claim in its favor; for since one-half of the deaths under chloroform have occurred before anæsthesia was produced, only one-half of the danger of a fatal result is obviated by this procedure.

8. Ether is safer than chloroform. Although statistics do not furnish absolute proof of this, the presumption is so strong in its favor that it practically amounts to a certainty.

9. Supposing, for the moment, that deaths were equally common from the use of both drugs, ether should still be preferred, for the author's analysis of fatal cases shows that the serious nature of the operation, or the diseased condition of the victim as shown at autopsy, was usually sufficient to account for the mishap and relieve the surgeon, more or less, of his responsibility. His statistics also show the opposite to be the rule in the fatalities attributed to chloroform—that is to say, they frequently cannot be explained by the condition of the patient's previous health, the severity of the operation, or the result of the autopsy.

10. The breathing of the individual under ether should be continually watched, and although it is not necessary to pay the same degree of attention to the pulse, it is more or less dangerous to entrust etherization to any but a skilled physician. The chief danger of ether lies in too great confidence in its harmlessness.—*Revue Médicale de la Suisse Romande*, February 20, 1890.

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#### ON DEATHS BY CHLOROFORM.

DR. B. W. RICHARDSON has recently published some observations on this subject in *The Asclepiad*, 1st quarter, 1890. He divides his subject for convenience into three heads: 1, comparative death by chloroform; 2, physiological or uncomplicated death by chloroform; 3, pathological death by chloroform.

In his first division he calls attention to the fact that in studying the fatal action of chloroform on animals, and then applying these results to mankind, inferences are apt to be drawn which are not applicable, because of essential differences existing between the subjects experimented upon and the human being. In the first place, in man the element of fear may play even a fatal part, as has often been shown. While an animal goes to sleep with the anæsthetic automatically—without a suspicion that it may never wake again—the very thought of dying under anæsthesia, of itself, whether expressed or concealed, involves serious risk to a human subject who has heard of the dangers it has to encounter, and firmly believes in them all. Fear may be the only explanation for many deaths where the wrist-pulse stops suddenly and the respiration soon afterward, before any of the usual phenomena of asphyxia have appeared. It also explains the frequent failure of artificial respiration in such cases; in animals it is almost always successful.

There are physical differences, too, as well as mental, which should be considered in applying the results of experiments on animals directly to the human race in its present civilization. To-day we have in our midst a large and ever-present group of individuals designated as the *morituri*—those who, from one cause or another, are in such proximity to death that they are at any moment ready to die from trifling external causes. This class does not exist among the animals, if we except those much reduced by old age, exhaustion, or starvation. Dr. Richardson says: "From the first week when chloroform was brought into practice unto the present hour I have read all available reports of deaths from chloroform. I had the privilege of assisting Snow in the collection of the data published in his posthumous work which I edited, and I am driven from this long and unique experience to the conclusion that, in many instances, death from chloroform in man has occurred amongst the *morituri*, and from conditions in which the physiological death by chloroform, as it is seen in the lower animals, has played no such commanding part as to lead to the conclusion that death occurred from uncomplicated asphyxia." Another physical difference is to be found in the condition of shock so frequently referred to by surgeons—a condition which the recent experiments have not shown to be producible in animals, and one which might well account for some of the deaths attributed to chloroform.

As to the second division of his paper, the physiological death of chloroformed animals, the writer expresses the belief that the immediate cause of death is not from the absorption of the vapor into the blood, but from the action of the absorbed vapor on the nervous system causing the subject spasmodically to cease to breathe; in other words, inducing apnœa, under which arrest of the heart's action soon follows. This view had already been expressed several years ago by Dr. Richardson.

In the third division, the pathological death by chloroform, the writer reiterates his classification published in 1870, in which he defines four modes of death by this agent in the human subject; namely, by syncopal apnœa, by epileptiform syncope, by paralysis of the heart and of the muscular system generally, and by chloroform combined with surgical shock. In the first variety breathing ceases, lividity, coldness, and insensibility follow, and the heart stops. This approaches quite closely to the physiological form of animals. The second class includes cases dying during the stage of excitement.

The third variety occurs after prolonged and gradual anæsthetizing; death is preceded by intermissions of the pulse, etc.; while in the last mode of dying surgical shock and chloroform combine to produce failure of the heart and syncope.

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#### THE THERAPEUTIC USE OF CAMPHORIC ACID.

Since the publication of articles on this subject by Fürbringer and by Reichert, camphoric acid has been extensively introduced in the clinic of Professor Mosler, at the Royal University Hospital at Greifswald, and a report of the results obtained therewith forms the subject-matter of an interesting communication by DR. BERNHARDT HARTLEIB in a recent number of the *Wiener medicinische Presse* (Feb. 23, 1890). The action of this drug was studied in three classes of diseases; namely, in acute and chronic catarrhal affections of the respiratory mucous membrane, in acute and chronic cystitis, and in the night-sweats of phthisis.

In the first class of cases, ordinary sore throat (angina) and catarrhal pharyngitis, were much improved by using a one-half to one per cent. solution as a gargle. The patients noticed their own rapid improvement, and expressed their satisfaction with the treatment, yet it is doubtful if it really acted more promptly than other remedies. Fourteen cases of laryngitis, in which the solution was either sprayed on or applied with a brush, also furnished gratifying results. But the inhalations of the drug administered for chronic bronchitis or pulmonary tuberculosis were not as successful. Eighteen patients received this form of treatment, and no improvement in their physical condition could be claimed, although several declared that they were relieved of the feeling of weight in the chest, so that they breathed more easily. The strength of the solutions used for inhalation varied from one to four per cent. As camphoric acid is only soluble in water to the extent of nine-tenths of one per cent., alcohol, glycerine, and water made alkaline by the addition of bicarbonate of soda, were separately used as media to dissolve it.

Excellent results were obtained in the second class of cases, *i. e.*, cystitis. There were ten of these cases under treatment with camphoric acid, five acute and five chronic. Of the latter, three were reported well six weeks after all medication had been stopped, the fourth was unfortunately obliged to leave before it was prudent to do so, and the fifth, a very obstinate case of four years' duration, was at first much improved, but the treatment was changed, and ten days later he had a relapse. Of the five acute cases, four made a complete recovery before leaving the hospital, while the fifth, still having a slight trace of pus in the urine, left against advice.

In practice, the writer recommends washing out the bladder twice a day with a one-half of one per cent. solution, and leaving an ounce or two inside when the catheter is withdrawn. After the camphoric acid has been employed in this way for several weeks, the strength of the solution may be increased. Where pyelitis is present, as well as cystitis, the drug may be simultaneously administered by the mouth. If the bladder be very irritable, local treatment should be suspended and eight grains (one-half of a gramme) given by the mouth three times a day. For convenience in irrigating the bladder, Hartleib advises keeping a twenty per cent. solution of camphoric acid in alcohol;

three drachms of this in a pint of lukewarm water furnishes approximately the required one-half per cent. solution. Among the cases of cystitis was one of gonorrhœal origin; it was apparently cured.

In treating the third class of cases, the night-sweats of phthisis, the usual amount given was fifteen grains (one gramme) at bed-time, although in obstinate cases thirty grains (two grammes) may be required. Hartleib does not believe it necessary to give as much as Fürbringer had recommended. Thirteen patients of this class received treatment, twelve of them with the result of stopping the night-sweats; the thirteenth, a phthisical patient in the surgical wards, with extensive tubercular disease of bone, received the usual amount (fifteen grains) for several nights without producing any effect; a larger dose was not tried.

The disagreeable after-effects of camphoric acid were few. One patient, who had taken fifteen grains (one gramme) three times a day, complained of severe pain in the region of the kidneys, which disappeared on stopping all treatment. Two patients, whose bladders were frequently irrigated, developed a slight swelling of the glans, which soon subsided. One consumptive patient vomited a dose of thirty grains (two grammes) of the acid, but retained half that amount without difficulty. Continued use of it does not appear to affect the stomach or intestine, in fact its action in proper doses is quite harmless.

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#### THE ACTION OF OLIVE OIL ON THE SECRETION OF BILE.

Although there is nothing very new in the administration of olive oil for the relief of biliary colic, the following abstract is inserted in the hope of shedding a little light on the obscure question of how it acts to relieve the pain and other symptoms of this distressing affection.

In an article which DR. SEIGFRIED ROSENBERG read at a meeting of the Medical Society of Berlin, entitled "The Use of Olive Oil in the Treatment of Biliary Colic," the writer reports three cases successfully treated by this method. Including his own, he finds recorded in the medical journals twenty-one cases in which the oil treatment has been tried; in nineteen of these the patients were described as much relieved or well at the time of their discharge, while in two cases only no improvement resulted.

In considering the *modus operandi* of this remedy, he takes exception to the theory which assumes that the oil in some manner finds its way into the biliary passages, where it produces a softening of the gall-stones, thus facilitating their passage along the duct. He believes that the exhibition of a large amount of oil or fat in the stomach and duodenum excites a correspondingly large flow of bile, and that this flushing of the channels with bile dislodges the calculi and cures the colic. He argues that since bile plays so important a rôle in the absorption of fat, it is fair to assume that the presence of fatty food in some way calls forth the bile which is so necessary for its assimilation. In his endeavor to prove this he tried a number of experiments on two dogs with permanent biliary fistulæ, giving them in the morning a large dose of oil (sometimes a quarter of a pound of solid fat of ham or bacon was substituted by way of variety), and noting each hour the amount of bile which had flowed from the fistula. In every case he found a very considerable increase in the amount and duration of the flow over that produced by

an ordinary meal of carbohydrates and albuminoids. It was also considerably more than the secretion he could produce by giving salicylate of soda or bile itself, both of which he had previously regarded as active excitors of the biliary function. He concludes from his experiments that oil acts as a powerful cholagogue, perhaps the most active of any, and to this action he attributes his success in the treatment of gall-stones.

Dr. Rosenberg considers it very important to flavor and disguise the oil as much as possible, for the very idea of drinking a glass of it is extremely disgusting to patients. To remove the nauseous taste, he adds one-quarter of one per cent. of menthol and ten or fifteen per cent. of brandy; and also advises adding the yolks of two eggs, finely divided and worked in, so as to be perfectly smooth; this materially alters the appearance of the oil. The dose should be from five and a quarter to seven ounces (150 to 200 grammes); it is best to give about an ounce at a time, in such a way that the whole amount will be consumed in three hours.—*Therapeut. Monatshefte*, Dec. 1889.

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#### CERTAIN USES OF THE SALICYLATE OF SODA.

In a recent article, PROF. B. STILLER, of Budapest, calls the attention of the profession to some of the less well known therapeutic uses of the salicylate of soda. After referring to the remarkable advance which has been brought about by the use of this drug in the treatment of acute articular rheumatism, he claims that the smaller percentage of cardiac complications now seen is due to the more speedy relief of pain and the fall of temperature usually obtained. He then passes quickly over the well-known antipyretic, antineuralgic, and antiseptic properties of the drug, to dilate at some length on its usefulness in the treatment of diseases of the liver.

Professor Stiller's attention was first called to the cholagogic action of the salicylate of soda by some articles in English medical journals. Since then he has made use of this drug for the treatment of hepatic disease, and has obtained most brilliant results, especially in cases of impacted gall-stones. Details are given of two obstinate cases of that disease. Beside the administration four times a day of half a gramme (seven and a half grains) of salicylate of soda, given in soda water, the patients were ordered to stay in bed, have a light nutritious diet (for the first few days restricted to liquids), and to apply large flaxseed poultices to the abdomen. Morphine was occasionally given hypodermically, but only during the first two or three days of the treatment was there any indication for its employment. When the pain and vomiting had stopped, the patients soon regained their accustomed appetite, and were sent to Carlsbad or Vichy, to take a course of mineral waters and complete the cure.

The beneficial action in these cases, Professor Stiller considers due to the increased secretion of a rather thin and fluid bile, which, he says, has been demonstrated experimentally to occur in animals. Alkaline and saline spring-waters, especially the hot springs of Carlsbad, exert, he thinks, a similar action. Turpentine likewise increases the flow of bile. He considers the utility of administering olive oil to dissolve gall-stones as yet unproven; in his own practice he has refrained from giving it, owing to the large and nauseous dose, while, at the same time, the analgesic action of the salicyl compounds

has led him to give them the preference in cases of painful biliary colic. Cases do occur in which the salicylate of soda gives no relief. These patients, in his opinion, seldom improve without surgical aid. If the obstruction be in the hepatic or the cystic duct, instead of the common duct as is usually the case, an increased flow of bile in no way facilitates its removal. In more than one of his cases several gall-stones were discharged; these may be dislodged by the greater velocity of the current of bile passing over them, and the succeeding calculi may not cause pain, provided the duct be left sufficiently dilated after the passage of the first one.

In acute catarrhal jaundice, Stiller has not as yet given the salicylate of soda, but says he means to administer it in small and frequently repeated doses, hoping thus to avoid its irritating action on the gastric catarrh which usually accompanies and is frequently primary to the duodenitis.

Among other uses of the drug, he has found it a serviceable diuretic in cases of pleurisy with effusion. To produce diuresis he gives daily three or four grammes (forty-five to sixty grains) in divided doses at very frequent intervals. In cases of sciatica (not of long-standing) he has attributed marked benefit to its use; and recent peripheral paralyses of the facial nerve are frequently affected by the salicylate in a manner little short of the marvellous. — *Wiener medicin. Presse*, Nos. 1 and 2, 1890.

#### CHLORALAMIDE AS A HYPNOTIC FOR THE INSANE.

“Of all the somnifacients discovered of late years,” says DR. S. A. K. STRAHAN, in *The Lancet* (February 15, 1890), “none is likely to prove a more certain sleep-producer, and, at the same time, be more innocent or otherwise agreeable, than chloralamide.” Among the insane it has acted to induce sleep as certainly, if not as promptly, as chloral itself. It rarely failed to produce the desired effect, even in extreme maniacal excitement, and when it did fail it did not increase that excitement as other drugs have been found to do; on the contrary, it always calmed the patient more or less.

From thirty-five to fifty grains were usually sufficient to give from five to ten or more hours’ refreshing sleep, and with fifty-five grains some effect was always obtained, even in the worst case of subacute mania or excitement following epileptic seizures. Patients were calm, and yet did not sleep heavily—that is to say, it was always easy to rouse them—and they usually declared themselves much refreshed on waking. In most cases sleep came on about an hour and a half after taking the medicine, although this interval varied from twenty minutes to three hours; two patients, however, were a little drowsy on the following day, and several, contrary to their custom, slept the next night without any medicine.

Chloralamide was not observed to affect the temperature, respiration, or pulse; in fact, the writer believes with Kuy, of Strassburg, that it acts precisely like chloral, only without any depressant effect on the heart. Headache, and the ataxic symptoms, sometimes seen after the use of sulphonal, were not noted; nor was any gastric trouble or loss of appetite attributed to its use. In fact, it is a very useful and safe hypnotic, equal but not superior in efficiency to paraldehyde; it is, however, pleasanter to take, and is free from the disadvantage of imparting any disagreeable odor to the breath.

## THE CLINICAL USE OF THEOBROMINE AS A DIURETIC.

DR. CHRISTIAN GRAM, of Copenhagen, has published in the *Therapeutische Monatshefte* an account of his clinical experience with this drug, begun in the summer of 1887. In his earlier observations he used the pure theobromine, and, although the action was frequently tardy and uncertain, the results were in some cases good ones. He attributed this uncertainty of action to slow absorption, for the pure theobromine is almost insoluble, and after various trials of its other salts he selected the sodio-salicylate, and has used it exclusively in the later observations.

Eight selected cases are detailed in tabular form, so as to show the daily amount of urine, its specific gravity, the percentage of albumin, and the daily secretion of urea. All of them were suffering either from advanced cardiac disease or chronic nephritis, and in most of them sphygmographic and sphygmomanometric records were also kept. The results show, it is claimed, that the pure theobromine is absorbed with difficulty; that when absorbed it is a powerful diuretic; that it affects the kidneys directly, and not through the medium of the heart and circulation; that the sodio-salicylate of theobromine is readily absorbed, and is likewise an active diuretic. It appears to be harmless; only once was any unpleasant after-effect imputed to it—a slight feeling of faintness. The usual daily dose was a drachm and a half, or fifteen grains, every four hours. The writer considers that the diuretic action was proved beyond question in all his cases, except those where either the medicine was not absorbed, or where the renal epithelium was so extensively degenerated that it was impossible for it to secrete any longer.—*Therapeutische Monatshefte*, January, 1890.

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## THE SO-CALLED DOUBLE-CYANIDE OF ZINC AND MERCURY.

As our readers already know, a new, stable and but slightly soluble antiseptic was introduced by Sir Joseph Lister last November—to wit, a double compound of cyanide of mercury and cyanide of zinc, obtained by adding a soluble zinc salt to a solution of the cyanide of mercury and of potash. It is considered an excellent material to add to gauze for antiseptic dressings, and has been popularly known under the name of “the double-cyanide of zinc and mercury.” This popular name is, in all probability, an incorrect one, for in a recent report of experiments conducted in the Laboratory of the Pharmaceutical Society, PROFESSOR DANSTAN and MR. BLOCK (who performed these experiments solely to find out if a double-salt was present) assert that no such double-cyanide of zinc and mercury can be formed; that in the new gauze the simple soluble cyanide of mercury is present in considerable quantity (perhaps all the mercury is in that form), but is prevented from dissolving by the mechanical presence of the precipitate of the zinc salt, and that probably all the mercuric cyanide may be removed by using a sufficiently large excess of water. In the discussion which followed the reading of this paper, Lister said that these experiments had a very important practical bearing—namely, that manufacturers and others making the new gauze must be very careful to follow his directions, and not use a larger amount of water than he had specified, both for the impregnating solution and also for the



starching, as otherwise a gauze would be produced deficient, if not almost free, from the cyanide of mercury.—*Lancet*, February 22, 1890.

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STROPHANTHINE AND OUABAIN.

At a recent meeting of the Académie de Médecine, DR. PANAS made some remarks upon these new local anæsthetics. Ever since the discovery of the remarkable local action of the salts of cocaine, he said, chemists have been trying to obtain similar effects from other organic compounds. The hydrochlorate of erythrophlein was believed to be a local anæsthetic in the eye, but its action is slow and unreliable, and it is apt to set up a conjunctivitis; other substances have given no better results. The latest which have been tried, ouabaine and strophanthine, are said, in weak aqueous solution, to produce complete and prolonged anæsthesia in the conjunctiva and cornea of animals, with a slight contraction of the pupil, followed by dilatation. Dr. Panas has introduced these drugs into the eyes of rabbits and men, and concludes that ouabaine, although a good local anæsthetic for the rabbit, does not produce this effect in mankind, while strophanthine, although a fairly good anæsthetic, is too irritating a substance to use in preference to cocaine, which is, in fact, still without a rival.—*La Semaine Médicale*, February 19, 1890.

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ANNIDALINE, A SUBSTITUTE FOR IODOFORM.

This new substance, which has been brought forward by MESSINGER and NORTMANN as a substitute for iodoform, is probably a combination of two molecules of thymol with three atoms of iodine—in other words, a triiodide of dithymol, whereas aristol is a diiodide of dithymol. It is a reddish-brown powder, which may be kept for several months, at least with proper care. It is decomposed by the action of light and moisture, giving off iodine and turning yellow. It is insoluble in water, slightly soluble in alcohol, readily so in chloroform and ether.—*Journal de Médecine de Paris*, February 8, 1890.

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MEDICINE.

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UNDER THE CHARGE OF

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INFLUENZA.

The journals are still full of this subject, bringing forward somewhat that is new, and much that is confirmatory of what has been already recently written regarding it.

STRÜMPPELL (*Münch. med. Wochenschr.*, 1890, No. 6, 90) calls attention to the differences which exist in the symptoms of the affection as seen at different places, and to the importance of exact descriptions of any local peculiarities witnessed. In the author's experience the symptoms of the disease have shown a remarkable similarity to those attributed to the cases in the epidemic of 1830-32. As to the existence of a specific cause of the affection, and the nature of this, we are still in doubt; and only the discovery of it will clear up the diagnosis in many instances. Many cases of simple catarrhal inflammation, of herpetic fever, and the like cannot be distinguished from it.

The multiform nature of the disease is characteristic, and permits the divisions of the symptoms into different classes. It must be borne in mind, however, that transitional forms exist.

I. First among the typical varieties may be mentioned the Typhoid form, in which the general symptoms predominate—such as fever, languor, pain in the joints, depression, headache, loss of appetite—while the local symptoms are absent or slight. The general appearance of the disease may be so severe in this form that the resemblance to typhoid fever is great. The sudden beginning is, however, characteristic of influenza, as are the severe lumbar and sacral pains. A pressing pain in the eyes is a very common symptom in influenza. Severe headache and nose-bleed are common in both affections. Strümpell has almost never detected an enlargement of the spleen in influenza, and delirium was rare.

II. The second form is the Catarrhal, with especial involvement of the respiratory apparatus, and with more or less of the general symptoms. The greatest number of cases belonged to this category. Not seldom there was a barking cough, reminding one of that of measles. Sometimes the finer bronchial tubes were the only part attacked; in other cases coryza or hoarseness were noticed, while the lungs were entirely uninvolved. Injection of the conjunctiva may be present, but well-marked conjunctivitis was rare in his experience.

III. The Catarrhal form, with especial implication of the digestive system. Of this the author saw but comparatively little, the commonest being the combination of angina with the general symptoms. Only exceptionally did he observe severe and persistent gastric and intestinal disturbances. Vomiting was frequent, but is rather to be considered one of the general symptoms.

IV. The Rheumatoid form includes those cases in which the most violent pain in the neck, lumbar, and sacral regions and in the extremities are almost the exclusive symptoms. The pains appeared to be sometimes in the nerve-trunks, oftener in the muscles. Sometimes they were so severe that the patients continually and loudly complained of them, and could not tell in what position to lie. Evident paresis was present in the painful region in some instances.

These forms scarcely ever exist in their purity, and some evidence of catarrhal affection of the respiratory apparatus and of muscular pain is almost always present. Influenza is very apt to relapse, and in this case a different form may be present in the second attack from that seen in the first.

The author observed the very sudden commencement of the disease in very few instances. As a rule, some days were required before the full violence of the affection was developed. Not infrequently there were some prodromal

symptoms, consisting generally of evidences of fever, violent headache, general weakness, and pain in the lumbar and sacral regions. Later the other symptoms of the disease appeared. The comparison of a large number of temperature-curves showed the following principal forms: 1. In the mild cases a slight, irregular fever with an evening rise, lasting a half to one week. 2. In the severer cases a temperature at first rising rapidly to about 104° F., remaining at this one to two days, diminishing for several days, so that there was but little fever or none, then going up again for several days, and rapidly sinking to normal and remaining there. 3. A curve which remains high from the beginning for four or five days, and then falls by crisis. This curve appears in the cases with severe general symptoms, especially if attended by diseases of the lungs. It is difficult to distinguish these cases from genuine pneumonia. 4. The most persistent fever was seen in the cases in which widespread lobular pneumonia or pleuritis developed. Here the temperature-curve resembled the typhoid fever curve, lasting three to four weeks, and ending by lysis.

Prominent among the complications is pneumonia, which Strümpell regards as in most cases not due to the original germ of influenza, but as a combination of the two diseases—an instance of mixed infection. The complicating pneumonia was usually, in his experience, diffuse, lobular, catarrhal, affecting the lower part of one or both lungs. The expectoration was generally mucopurulent. Often there was no evidence of pulmonary consolidation. The development of a large pleural effusion was a not uncommon complication in the author's cases. In two instances nephritis occurred. The author believes this analogous to the development of nephritis in the other infectious diseases.

Recovery was quite slow even in the entirely uncomplicated cases, as the patients often for weeks complained of weakness which they could not overcome. Relapses were frequent. The treatment was purely symptomatic. Death occurred in two cases; in neither of them from the disease itself.

DUFLOQ (*Rev. de Méd.*, February, 1890) divides influenza into three forms, of each of which he reports instances in detail:

I. The Nervous form. This variety was in his experience much the most frequent, but at the same time the least grave. In some of these cases there was pain in the head of varying character and intensity; in others lumbar pain was much the most prominent symptom. In some cases there were fever and chilliness, or attacks of syncope, or excessive weakness.

II. The Thoracic form became more and more prominent in Paris as the epidemic advanced. It may be divided into several classes:

A. The Respiratory form, including—1. Those in which coryza and conjunctival irritation mark the onset of the disease. 2. Those in which involvement of the larynx is the earliest symptom, or in which hoarseness develops as the fever and pain are disappearing. In other instances the symptoms of œdema of the glottis appear. 3. The numerous instances in which tracheitis or a common cold develops. 4. The very frequent cases in which bronchitis exists, usually of slight degree. 5. Those in which very marked dyspnoea accompanies moderate bronchitis. 6. Those complicated by pleuro-pulmonary congestion, and being among the grave cases of grippe. The symptoms of this congestion in grippe are the same as those seen apart from it. It may arise in the course of the influenza or during the convalescence; and may be

double or only on one side. It is peculiarly insidious in its onset, and in some cases only repeated and careful examination reveals a small patch of congestion. Often there is but little cough, and the expectoration is absent or not characteristic. The râles are not like those of ordinary pneumonia, being even more fine, dry, and superficial, and often only evident on coughing. The presence of some impairment of resonance shows that it is not bronchitis; the diminution of vocal fremitus, that the condition is not pneumonia; and the presence of fine râles, that it is not pleurisy with effusion. 7. The cases in which actual pneumonia develops. These are instances of a mixed infection with two species of microbes. The existence of the influenza predisposes to the development of the pneumonia. This latter has certain special characters. It is often insidious in its onset and has but little pain in the side, and an absence of characteristic expectoration.

B. The Cardiac form. Instances of this were not frequent in the author's experience. There are several varieties of it. 1. In the first there is an acceleration of the pulse from the beginning of the disease. In cases of the nervous form there is often a rapid pulse, even after the fever has diminished. 2. There may be cases exhibiting a pseudo-angina pectoris, and the author reports an instance of this sort. 3. When grippe is complicated by pulmonary conditions there may be evidences of great cardiac weakness appearing.

III. The Gastro-intestinal form. 1. It is not uncommon to see instances of the nervous variety exhibiting intense headache and yet with good appetite, perfect digestion, and clean tongue. 2. In other cases nausea and vomiting occur at the onset of the disease, and appear to be connected with the nervous system. 3. In a third group there is in addition a loss of appetite and a condition of coated tongue removed by the administration of a purgative. 4. In other instances the digestive disturbance is more severe, and the anorexia remains five or six days after the disappearance of the acute symptoms. 5. There are certain patients who suffered with prodromal symptoms, consisting of headache, nausea, vomiting, progressive loss of appetite, restless sleep, dreaming, general feebleness, accompanied often by vertigo, fever, epistaxis. The diagnosis is not always easy between grippe and typhoid fever. 6. Sometimes the symptoms are still more pronounced, and there is blood in the stools, persistent diarrhœa, evident emaciation, and very tardy return of appetite. 7. The author has seen one instance of vomiting and diarrhœa so severe that the attack might be called choleraiform.

Eruptions: He has observed two instances of a scarlatinal eruption in influenza and one of a morbilliform rash. Other cases showing similar eruptions have been reported to him.

As regards the course and termination, the affection may last but one or two days, but the convalescence even then is not complete for from four to eight days, the patient remaining weak with lumbar pain, susceptible to cold, and liable to develop respiratory affections. Simple grippe is usually benign, but pulmonary complications are apt to develop at about the fourteenth to sixteenth day, after the patient has been out of the house.

Comparisons of the health statistics of Paris for the first week of the years 1889 and 1890, respectively, show that the number of cases of pulmonary disorders was greatly in excess in the latter year.

There is no doubt that the disease is of an infectious nature, but the method of its propagation is a disputed point. The author believes that the air is certainly the means of transporting the still unknown germ. He relates the history of its mode of propagation in a certain village, as well as several other instances which appear to prove that it is communicated from person to person. This communication may be by means of furniture or clothing. He takes the view that the external air carries the infectious elements into a certain locality, and that those first taken sick then appear to become centres for the spread of the disease. It is therefore both epidemic and contagious.

According to a report appearing in *Le Mercredi Medical*, January 29, 1890, Gorecki has observed amblyopia, weakness or spasm of the accommodation, and paralysis of convergence in influenza; Parinaud has seen ophthalmic migraine; Valude paralysis of the external muscles; Gillet various subjective disorders of the eye; Adler has seen keratitis of a special form, iritis, and glaucoma; Reynier, Dreyfuss, and Schwabach have observed otitis with varying frequency, and Gottschalk four cases of metrorrhagia brought on by the onset of influenza. Two of these latter were accompanied by dysuria also.

BOUCHARD (*Le Mercredi Medical*, January 29, 1890), writing on the "Contagion of Grippe and its Complications," says that he had previously expressed the belief that the grippe was not contagious. He has, however, had cases reported to him which would appear to prove that it spread from person to person in a city by direct contagion. These facts are not in accord with what we know of the suddenness of its dissemination, and of the influence of meteorological conditions upon it. He does not believe that there is any specific microorganism the cause of the disease, as he has found three different species present in it. His opinion is that some one of the ordinary microbes—different in different cases—acting upon a person whose organism has lost the power of resistance, becomes pathogenic and produces the disorder. He is still in doubt, therefore, whether the affection is contagious or even infectious.

DUPONCHEL (*Ibid.*), in speaking of the "pneumonia of influenza" ("*pneumonie grippale*"), expresses the view that it is not a concomitant attack of pneumonia independent of influenza, but that it is one of the numerous manifestations of the latter disease. He bases this opinion on the fact that, though the physical signs in three cases observed by him were the same as those seen in ordinary acute pneumonia, the expectoration was not rusty, but liquid, mucous, and more like that of a bronchitis. There had been pain in the side without initial chill. The course was not like that of ordinary pneumonia, but in successive exacerbations, more like that of bronchopneumonia. The duration was about three weeks, the decline gradual and accompanied by abundant perspirations, various nervous troubles, and extreme languor. No encapsuled diplococci could be found in the sputum.

VAILLARD (*Ibid.*) presents the following *résumé* of the results of his bacteriological studies on influenza.

1. In those who died of grippe a streptococcus was found in the blood, spleen, lungs, or liquid effusions. Three times in four this microbe was entirely alone; in one case the staphylococcus was also present.

2. In empyema consecutive to influenza the streptococcus was the only one present.

3. The same streptococcus was constantly present in the expectoration of persons suffering from grippe. As a result of this constancy, one is induced to believe that the microorganism plays an important rôle in the pathogeny of the affections occurring during influenza. Whether or not it is the cause of the disease itself, cannot yet be determined.

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#### PSYCHOSES AFTER INFLUENZA.

KRAEPELIN (*Deutsche med. Wochenschr.*, March 13, 1890) reports a series of eleven cases in which various psychoses developed after influenza had run its course. The immediate cause appeared to be rather the general weakness of the organism, though it is possible that the long period of depression seen in the disease is due to the continuing action of the poison, and that this may be etiologically connected with the mental disturbance. Three groups of the psychoses were evident. The first contained the cases of simple psychic depression, shading off into melancholia, or with a hypochondriacal tendency. Another case, nearly allied to this group, exhibited delusional ideas in addition to melancholia—what might be called a depressive delusional insanity. Cases of the group are entirely analogous to those which occur after long continuous infectious diseases, after articular rheumatism, whooping-cough, and typhoid fever.

The second group of cases, as observed by him, resembled more those psychoses occurring after pneumonia and the acute exanthemata, and in the puerperium. They may be considered acute conditions of exhaustion, "collapse delirium," consisting of a rapidly developing confused excited condition, with numerous illusions.

In one of these cases the condition was more severe, reaching a protracted state of asthenic delirium, a hallucinatory confusional insanity. Another of the cases of this group exhibited typical mania, with a well-developed condition of depression, and with a course much longer than in collapse delirium.

A review of the cases so far discussed shows that in none of them did the bodily disease appear to be the only cause of the mental disorder. In all there existed certain other factors which either produced a certain predisposition, a diminution of the mental and bodily power of resistance, or, *vice versa*, gave the last needed impulse to the production of a psychosis in the person already predisposed by the occurrence of influenza.

The first condition was the commonest in the author's observation. Under this heading the author enumerates preëxisting anæmia, pulmonary, gastric, and cardiac affections.

The second condition was illustrated by the occurrence of erysipelas, the puerperium, and great excitement immediately after the recovery from influenza.

It would, therefore, appear that influenza alone is not sufficient to occasion development of a psychosis. And, as cases show that influenza often only gave the last needed impulse to this development, it follows that the form of psychic disturbance is not greatly dependent upon influenza. This was especially true of the third grade of cases, in which the absence of dependence

was very plainly manifest. In one of these, for example, there developed a typical delirium tremens in a man who had been addicted to alcoholic excess.

The treatment of the psychoses after influenza is, naturally, chiefly of a tonic sort. Rest in bed is to be enjoined, combined with prolonged bathing or packing. To procure sleep, the bromide preparations may be employed in moderate doses, or sulphonal, or hyoscin in bad cases. Abundant nourishment is indicated; stimulants if collapse is feared. In this way, most cases will be aided to recovery, unless fatal collapse occurs.

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#### A CONTRIBUTION TO THE CURATIVE ACTION OF ERYSIPELAS IN MALIGNANT TUMORS.

KLEEBLATT (*Münch. med. Wochensch.*, February 18, 1890) refers to the fact that the therapy of malignant growths is still of but little avail in spite of the progress made in their surgical treatment. It has also been repeatedly observed that an intercurrent attack of erysipelas has produced the diminution in size or even the disappearance of such growths. The question has, therefore, been raised and variously answered as to the justifiability of artificially producing erysipelas in desperate cases. Ricord and Depres, in France, were the first to carry this procedure into execution; and Busch, in Germany, did the same with astonishing results. Fehleisen having succeeded in obtaining pure cultures of the cocci, material for producing the disease was always at hand. He reported seven cases in which inoculation had been performed. Kleeblatt reports in detail three interesting cases of malignant growths in which he employed inoculation with the cultures of Fehleisen's coccus. The first was that of a man of fifty-four years, suffering from lympho-sarcoma of the left tonsil with enlargement of the neighboring lymphatic glands. The tonsil was removed by operative interference, and the glands scraped or taken out. The patient did well after the operation for a time, but the growth then returned in the same situation, as also in the other tonsil and in numerous glands. Fowler's solution was given by injection, and as a result several abscesses formed, from one of which an attack of erysipelas started. The result of this attack was a notable diminution in the size of the different tumors and a great improvement in the condition of the patient. After a time the disease began again to increase, and the author inoculated the patient with Fehleisen's coccus. The attack of erysipelas which was the result of this produced a great diminution of some of the growths and a total disappearance of others. Nevertheless a renewed development of the growths occurred in a short time, and was followed by the death of the patient.

A second case suffered from lympho-sarcoma of the nasal cavity, and a tumor extending from the mastoid process to the angle of the lower jaw. Inoculation with erysipelas was performed in this case too, and was followed by a complete and what appeared to be a permanent disappearance of the disease.

A third case, a patient with a small lymphadenoma, developed erysipelas twice spontaneously. The first attack was followed by a diminution in the size of the growth, and the second by its total disappearance.

The author believes that the cocci penetrate the tumor, multiply there, and produce destruction of the cells of the growth by a direct action on them.

Or, if it is true that a special microbe is the cause of the development of carcinoma or of sarcoma, then the cocci of erysipelas must wage war directly with them, destroying them, and bringing about the death of the cells secondarily. He believes, too, that the salutary effect of the erysipelas depends not on its local action alone. The high and often long-continued fever tends to bring about a fatty degeneration of the cells. In other febrile diseases, as typhoid and scarlet fevers, and in cholera, the disappearance of sarcomata, lymphomata, and adenomata has been observed.

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#### ACROMEGALIA.

Another case of acromegalia is reported by PÉCHARDRE (*Rev. de Méd.*, February, 1890). The patient, a woman of forty-two years, was without family history bearing upon the development of the affection. There was likewise nothing abnormal to note in her previous history, except the occurrence of rheumatism, limited to one shoulder, and probably phlebitis of the left leg. She had always had a small goitre, as had one of her sisters.

Seven years before seen she suffered from sudden suppression of menstruation, accompanied by abdominal and lumbar pain. The pain disappeared after some weeks, but she never menstruated afterward. In the course of about six months she began to experience general langour and dyspeptic phenomena. It was about six months after this that she noticed that her hands, feet, and head and face, had grown larger, and that her physiognomy had so altered that many persons did not recognize her. During these six months she had experienced a gnawing pain in the hands, coming on at three o'clock at night and lasting until eight or nine in the morning. The pains were severe, and prevented sleep. The arms became weak, and the fingers clumsy. During the years following the patient noticed a constant growth of the hands, feet, and head. The painful sensation in the hands gave way to erratic and often violent pain, lasting hours or days, and occurring principally in the calves, thighs, and shoulders. The dyspeptic disorders diminished, langour was still present at intervals, vision was slightly impaired, hearing also, due probably to a purulent catarrh. There was slight cardiac palpitation and some oppression.

When examined, the most striking feature was the enormous size of the head, with very prominent frontal, parietal, and occipital protuberances. The face was also hypertrophied in certain parts, the nose being enormous, and the lower jaw having grown to such an extent that when the jaws were closed the lower incisors were separated  $\frac{1}{2}$  inch from the upper ones. The teeth were separated from each other in the gums. There was very pronounced macroglossia, interfering to some extent with talking and with mastication. The hands, too, were much enlarged in breadth and in thickness, though no longer than normal; the fingers being round and thick. The thenar and hypothenar eminences were bulging and constituted marked prominences; the palmar folds were very evident. The feet were enlarged in a similar manner, the hypertrophy of the great toes being remarkable. All the bones of the foot and leg appeared to be thickened. The large size of the abdomen and the fat on the buttocks prevented the positive determination of the condition of the pelvis, but the crests of the ilia appeared to



be somewhat enlarged. Nothing else abnormal could be detected in the trunk.

The patient suffered from continual languor and weakness. The size of the fingers produced awkwardness, and there were stiffness and at times tingling, but never any symptoms of paresis. There were some erratic and transitory pains in the lower extremities and in the lumbar region. The intelligence was normal. The patient suffered from profuse perspiration coming on after the least exercise. No other symptoms presented themselves bearing upon the disease.

#### INTRATRACHEAL INJECTIONS OF CREASOTED OIL.

DOR (*Rev. de Méd.*, February, 1890) terminates an exhaustive article on this subject with the following conclusions:

1. Intratracheal injections of creasoted oil, of the strength of 1 in 20, are admirably borne by the majority of patients. 31 minims may be injected twice a day; this equalling 3.1 grains of creasote. The author has never observed any complications provoked by the use of the injections; the patients never had hæmoptysis, fever, or stitch in the side which could be attributed to the medicine, and digestive troubles were not produced analogous to those seen when creasote is administered internally.

2. Experiments on animals showed that the oil reached the alveoli, and stayed there fifteen days, and that it is unfitting to make use of glycerine or vaseline as an excipient, but that olive oil, which has been sterilized by boiling, should be employed.

3. The injections of 31 minims of the oil twice daily should be practised during many months. It is necessary to auscult the patients frequently, and to make them take the position necessary to allow the oil to penetrate to the diseased portions of the lungs. It is often possible to determine whether the oil has reached the part by the production of bubbling râles.

4. In the majority of cases under the influence of this treatment, expectoration diminished, pain in the side disappeared, appetite returned, and weight increased. The auscultatory signs were modified somewhat.

5. It is principally tuberculous patients of the first or second degree who are benefited by the treatment. For patients with numerous cavities, it would be better to choose an antiseptic more powerful than creasote; and camphorated naphthol appears to answer this purpose. A solution of one-tenth strength is tolerated by the trachea, but the author has not studied the influence of this substance on foci of suppuration in the lungs.

#### THE GASTRIC MUCOUS MEMBRANE IN SECONDARY DISEASES OF THE STOMACH.

STINTZING (*Münch. med. Wochenschrift*, February 18, 1890) calls attention to the frequency with which the stomach is secondarily affected in all severe diseases. The chief complaint of consumptive patients, and those with heart disease, is often of gastric disturbances; and in infectious and nervous diseases appetite and digestion are often much impaired. It might almost be said that no one dies without disordered action of the stomach, apart from cases of sudden death. It is not certain whether these dyspeptic

disorders are functional or organic. In any case the secondary affections of the stomach demand careful consideration, since with a better knowledge of them we shall understand better their therapy, and the difficult matter of appropriate sick diet. Stintzing has already published some observations on the anatomical changes observed in such secondary diseases of the stomach, as nervous dyspepsia and the dyspepsia of phthisis and of heart disease, and has shown that severe organic disturbances may take place in them. As a further contribution to this subject he reports several cases which he has recently examined. The first was a case of acute pulmonary tuberculosis in a girl of twenty-three years, in which death took place in the course of a few weeks. The epithelium of the rugæ was partly degenerated and in many places exhibited a cuboidal appearance or had suffered destruction in the mucus covering the surface of the membrane. The very great hyperæmia of the upper epithelial layer was particularly striking. But few leucocytes were found penetrating the upper layer in comparison with the number seen in chronic cases, but the small-celled infiltration and the hypertrophy of connective tissue were just as great. The lumen of the glands was moderately widened and contained mucous masses but no cells. The parietal cells were of normal size and form, but frequently granular and not sharply outlined. The chief cells were likewise poorly defined and did not stain well. "Food cells" (*mastzellen*) were found between the glands. The *muscularis mucosæ* contained no pigment.

In another case, that of a man of twenty-five years, dying from hypertrophy and dilatation of the heart, with symptoms of great passive congestion, histological changes of a high degree were found. In all layers of the mucous membrane there was a great increase of connective tissue, and the tubular glands were much diminished in number and much branched. The glands were for the most part widened, their cells flattened, and the parietal and chief cells scarcely to be distinguished from each other, and the former in some localities were diminished in number and marked by the accumulation of nuclei in one cell. The "food cells" were especially numerous, situated chiefly in the inter- and subglandular connective tissue, and penetrating between the tunica propria and the glandular cells, and even between these cells themselves. There was rather scanty pigment in the *muscularis mucosæ*.

Two other cases were examined, one of uncomplicated typhoid fever, the other complicated by heart disease. In the first there was extensive degeneration of the epithelium of the glands and of the superficial layer, together with a decided increase of the connective tissue. The glands were dilated, their mucous membrane in folds, and their lumen filled with mucus and the remains of leucocytes. In the other case the number of the parietal cells was diminished, and cells were found which appeared to be transitional forms between the chief and the parietal cells. The *muscularis mucosæ* contained considerable pigment in the second case but none in the first.

A review of the appearances seen in the different cases shows that though alike in some respects they differ much in others. There was no migration of leucocytes through the superficial epithelium in the case of tuberculosis. The number of the parietal cells was diminished in typhoid fever, but an instance of their absence could not be determined. The advance of the food

cells out of the connective tissue into the glands indicated that these cells, under diseased conditions, entered into some relation with the glandular cells; but it is still doubtful whether for furnishing nourishment to the degenerated glandular cells, or for removing the products of decomposition going on in them, or for other purposes. The presence of pigment in the *muscularis mucosæ* appears to occur in cases in which the stomach has frequently before been exposed to injurious influences.

#### ON THE MODIFICATION OF THE GASTRIC FUNCTION OF THE STOMACH.

As a result of experimental and clinical studies, FERRANINI (*Münch. med. Wochenschrift*, February 18, 1890) comes to the following conclusions:

1. Purely nervous gastropathies are excessively rare.
2. Disturbances of chemism or of secretion may be present alone, but motor disturbances and affections of absorptive power are always attended by affected secretion.
3. The most frequent functional disorder of the stomach is hyperacidity of the gastric juice.
4. In hyperacidity of the gastric juice the symptoms are related in part directly to the increased amount of hydrochloric acid present, and the increase of the antifermentative action; in part to the cause whose result the hyperacidity is.
5. Cases of hyperacidity in which the motility and the power of absorption are normal, or only the motility is disturbed, may rest on a purely nervous basis. If, however, both of the last-mentioned functions are involved, the case is one of beginning chronic gastritis.
6. Hyperacidity may be purely primary, but in chronic gastritis it, like the other functional disturbances mentioned, is the result of an anatomical lesion.
7. In hyperacidity of a purely nervous origin the diminished motility is improved if the acid gastric secretion be neutralized. If, on the other hand, it is due to chronic gastritis, the neutralization is without effect.
8. In gastric ulcer hyperacidity is the most constant symptom; and the other disturbances attending it permit of a conclusion whether chronic gastritis is also present.
9. Simple chronic gastritis is to be distinguished from atrophic and sclerotic gastritis by the absence in the latter of the hydrochloric acid, pepsin, and lactic ferments, the abolition of the power to dissolve starch, the possibility of the solution of albumin under the influence of lactic and butyric acids, and the diminution of the power of absorption and of the motility.
10. This simultaneous existence of the alterations in the different functions of the stomach offers no criterion for the assumption of the presence of a carcinoma.

## SURGERY.

UNDER THE CHARGE OF

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### CONTRA-INDICATIONS TO THE METHOD OF SUSPENSION IN SPINAL DISEASE.

M. PAUL CHERON (*L'Union Médicale*, Feb. 4, 1890) sums up the accidents which have occurred during suspension and the general contra-indications as follows: Professor Charcot reported some of these accidents as having happened at the Salpêtrière during the earliest application of the method. A patient with atheromatous disease but without valvular lesion of the heart, developed œdema of the inferior limbs after the seventeenth treatment; his heart having been overtaxed. In another case after several treatments the patient became faint, which was soon followed by actual syncope; a similar accident occurred with another patient. The parietic symptoms in a case of tabes with marked anæmia, were much aggravated under this treatment. M. Charcot has noted a radial paralysis from pressure upon and rupture of an atheromatous artery, which was determined by compression used in the armpit. Erb, too, has seen, after several treatments, a constriction at the level of the chest, great weakness, and sudden death, for which the autopsy failed to show any cause. The patient was very heavy. Morton has reported an increase of cutaneous anæsthesia and of cervical cramps. M. Gilis, in a case of vertebral polyarthrititis where Sayre's jacket was used, states that entire unconsciousness ensued.

Dr. Blocq reports that a patient suffering with tabes and general paralysis, having learned from a physician the *modus faciendi* of suspension, wished to treat himself; after one treatment he fell into a comatose state and rapidly succumbed.

A woman in New York strangled herself by the displacement of the chin-piece and the double strap. A tabetic patient with paraplegia caused himself to be suspended every day by a servant; he died in twenty-four hours after a treatment (Gowcki).

In a case recently reported by Borsari, a patient afflicted with irregular heart action became unconscious after each suspension, convulsive movements of the extremities were present, and inability to walk. Vomiting and fever soon followed, and death resulted three days after the last suspension. In addition to the ordinary lesions, acute cerebral and spinal lepto-meningitis was found. These accidents show that all treatments should be directed by a physician or an experienced assistant.

Blocq has placed under three heads the different contra-indications of treatment by suspension (*Bulletin Méd.*, 1889, 46):

- (1) The general condition.
- (2) Some affections of the cardio-pulmonary and nervous systems.
- (3) Certain local lesions.

(1) Great debility and marked anæmia contra-indicate this method of treatment. Œdema and obesity necessitate active suspension, the first often renders suspension very painful. In cases of this kind the apparatus of S. Weir Mitchell would be of great service.

(2) During suspension respiration increases in frequency and diminishes in fulness. Chronic affections of the respiratory passages, such as emphysema and pulmonary phthisis strongly contra-indicate this treatment. Atheroma favors rupture of vessels from the direct pressure of the straps. As suspension increases the frequency of the pulse, it should not be used for patients who are liable to congestive or cerebral apoplexy. All the cardiac affections and those of large vessels are an express contra-indication; compression with such patients has a tendency to produce syncope, attacks of dyspepsia, drowsiness, etc., however they are often prevented by talking with the patient during the suspension (Motchoulkowski).

(3) The teeth should be carefully examined, as sometimes they are so fragile, or carious, that the bandage for the chin cannot be adjusted. It is well to abstain from this treatment in a case of tabes predisposed to spontaneous fractures.

#### CHRONIC OBSTRUCTION OF THE COMMON BILE-DUCT BY GALL-STONES.

DR. WILLIAM OSLER publishes, in *The Annals of Surgery* (March, 1890), that portion of his elaborate memoir on hepatic fever which is of most importance to the practical surgeon. The fever he speaks of is due to chronic obstruction of the common duct by gall-stones, is intermittent in character, and the cases present the following group of symptoms:

1. Jaundice of varying intensity, deepening after each paroxysm, and which may persist for months, or even years.
2. Ague-like paroxysms characterized by chill, fever, and sweating, after which the jaundice usually becomes more intense.
3. At the same time of the paroxysms, pain in the region of the liver, with gastric disturbance.

In a majority of cases this combination of symptoms is characteristic of the existence of gall-stones in the common duct.

We meet with rigors, fever, and sweats in three conditions of the bile passages: As an acute and transitory process in ordinary hepatic colic associated with the passage of a stone through the duct. In chronic obstruction of the duct, usually by stone, without lesions of the bile passages other than dilatation and catarrhal cholangitis. In suppurative cholangitis produced by gall-stones or other causes.

He details eight cases of this character, and analyzes the symptoms as follows: First. Jaundice.—This was present in every instance and may be said to have been constant, though varying very greatly in its intensity. In every one of the cases the statement occurs that after the paroxysm the jaundice invariably deepened.

Dr. Osler does not remember ever to have seen a well-marked paroxysm, with intense rigor and high fever, in which this peculiarity did not occur.

The patient soon learned to recognize it and to expect it, as a matter of course.

With this, the amount of bile-pigment increased in the urine, and the stools became more clay-colored. After persisting for a week or ten days, the tint would become lighter until the skin would become, in the intervals, almost normal. The urine, too, would be lighter in color and the stools contain bile. In certain of the cases the jaundice for months together was of the most intense grade. It is possible that cases of intermittent pyrexia may occur without jaundice, owing to chronic obstruction of a main duct in the liver. Magnin refers to one under Charcot's care.

Second. Fever.—This, in well-developed paroxysms, begins with a sharp rigor. It may be represented, however, only by a sensation of cold, a creeping chill, in contradistinction to a shaking one. The fever rises suddenly, and may reach from  $103^{\circ}$  to  $105^{\circ}$ . At first dry and pungent, the skin gradually becomes moist, and usually within from two to five hours of the commencement of the rigor the patient is bathed in perspiration. The entire duration of the fever is from six to twelve hours; rarely does it persist for an entire day. Defervescence takes place rapidly when the sweating begins. Although the rule is for the paroxysm to present the usual stages, as here described, there were in each of the cases lesser attacks, often of fever alone or of fever with sweating. Slight rises of temperature without chills also occurred. Sweating was occasionally seen without the fever. The paroxysms occur at irregular intervals. They may present a tertian or a quartan type, and in such cases the diagnosis of ordinary ague may be made.

Third. Pain of some sort is, as a rule, present. It may, but certainly does not always, precede the rigor. In some cases it is not at all a striking feature, and the most intense paroxysms may be quite painless or only accompanied by a sense of gastric distress. It may have all the characteristics of genuine hepatic colic, agonizing, griping pain in the liver region, with the associated symptoms, feeble pulse, and clammy skin. In several of the cases the pain was not at all a distressing symptom.

Fourth. Gastric disturbances.—Vomiting often precedes or accompanies the attack, and frequently before its onset the patient complains of loss of appetite or nausea; the tongue becomes furred, and it seemed very often as if a gastric catarrh really initiated the paroxysm.

The condition of the patients in the intervals between the attacks is a point of considerable importance. They are often well enough to resume their work, or, in the case of women, to do light household duties. There is not progressive deterioration of health and strength, such as we meet in malignant disease. With the exception of one, who had been ill three years, the patients were all well nourished—some of them fat; even one woman, who had been jaundiced, she said, for ten years, had a very fair layer of panniculus.

Regnard found in one case that the excretion of urea was diminished during the attack. Only in one case was a careful study of the urea made during the attacks, but no special diminution was found.

*Diagnosis.*—The significance of hepatic intermittent fever cannot be appreciated without taking into account the associated group of symptoms, and when these are present it points clearly to obstruction of the common duct by calculus. The condition of the bile-passages in these cases is one of catarrhal,

not suppurative, cholangitis. Chronic obstruction of the bile-duct, either by stenosis or by gall-stones, may persist for months without inducing this intermittent pyrexia.

From a practical standpoint suppurative cholangitis is the only affection from which gall-stones with hepatic intermittent fever is to be differentiated. The post-mortems in two of Dr. Osler's cases, and numerous observations in the literature of the subject, show conclusively that the intermittent pyrexia in these long-standing cases is not necessarily associated with suppuration in the ducts. But, unfortunately, suppurative cholangitis is most frequently caused by blocking of the common duct with a stone; and it is important to determine in a given case the onset of suppuration. In deciding this, stress may be laid upon the following points: 1. Increased tenderness in the hepatic region with possibly enlargement of the gall-bladder, as this is a more common event in suppurative cholangitis than in simple obstruction of the duct. 2. The more frequent return of the paroxysms, and in some instances the irregularly remittent character of the fever. 3. The jaundice is not so intense in suppurative cholangitis, and we do not see the remarkable deepening in color after the paroxysms. 4. The general condition of the patient in the intervals is very different in the two conditions. When suppuration exists there are rarely the prolonged periods of apyrexia, the freedom from distress and the general betterment which we see in cases of simple gall-stone obstruction.

*Treatment.*—The remarkable success which has recently been obtained by surgeons indicates clearly the line of treatment which should be followed, and although the results of opening the common duct have not been so favorable as in cholecystotomy, yet they are sufficiently hopeful to warrant the attempt in every case, either to push the stone into the duodenum, or to crush and extract it.

Of medicinal agents none has been found of the slightest value, either in preventing the onset of the paroxysm or causing the solution or propulsion of the stone. Certain of Dr. Osler's cases were drenched with olive oil, and most of them had taken soda salts and mineral waters. Many of them had taken quinine in large doses, but it was quite ineffectual, either to control or to prevent the paroxysm.

Dr. Osler arrives at the following conclusions:

1. Chronic obstruction of the common bile-duct is often accompanied by an intermittent pyrexia, associated with a symptom-group of the greatest diagnostic importance.

2. This apyrexia is not usually the result of suppuration, as has been supposed, but occurs with a catarrhal cholangitis.

3. That it arises from the absorption of a ferment, produced in the ducts, is rendered highly probable by the discovery of microorganisms, both in the catarrhal (Case 1) and in the suppurative cholangitis (Netter and Martha).

4. While recovery may follow, even after months (Cases 2 and 8), or even years (Case 3), a fatal event is only too common.

5. A recognition of the importance of this intermittent pyrexia and its associated symptom-group, as diagnostic of obstruction of the common duct by gall-stones, should, in the present condition of hepatic surgery, lead to more frequent operative interference in these cases.

## OPERATION FOR CHOLELITHIASIS.

In a consideration of the operation appropriate to the treatment of biliary calculi, KOCHER (*Correspondenzbl. für Schweiz. Aert.*, Feb. 15, 1890) rejects cholecystotomy with suturing of the gall-bladder, incision, and return of that organ to the peritoneal cavity. To be preferred in case of calculi in the gall-bladder is either cholecystostomy or cholecystectomy. In case there is obstruction to the ductus choledochus, or cystic duct, however, the ideal operation consists in removing the stone by way of the gall-bladder, performing cholecystenterostomy, as suggested by Nüssbaum. Menostyrski's two cases of this operation were both successful. Of course, this operation is only applicable when there is a gall-bladder; as a result of inflammatory change, or atrophy, frequently no gall-bladder can be found. For these cases, and for those in which the stone is fixed in a dilated hepatic duct, cholelithotripsy, as suggested by Lawson Tait, is indicated.

Credé performed this operation with a successful result in a case where the gall-bladder was universally adherent, and contained two stones, and had its duct obliterated; in addition, a stone was found in the common duct; this was crushed, and the fragments were subsequently expelled by three efforts on the part of the patient, each characterized by violent colic.

Kocher's case, which he considers typifies the conditions indicating crushing, was as follows:

Man, æt. fifty-two. Consumption in the family. Had suffered at long intervals from biliary colic for fifteen years. Had passed gall-stones. Attacks of pain recurring at more frequent intervals lately until the pain and tenderness became constant. In the last few months before entrance to the hospital very frequently repeated pain with chills and fever, and often accompanied by violent muscular spasms. A green, thick, slimy deposit in the urine, closely resembling gall. The patient has been markedly jaundiced for upward of a year. Liver enlarged downward four finger-breadths below the right margin, the left lobe participating in this growth. Gall-bladder not to be found by physical examination. Feces slightly colored by bile. The attack of colic had been characterized by most violent pains, by coma, and subsequently by the appearance of bile in the urine.

The diagnosis was cholelithiasis, with only partial obstruction to the escape of bile, but as to whether the stone was lodged in the common duct at the point of exit of the cystic duct, or in the hepatic duct could not be positively determined.

An oblique incision, nearly eight inches in length, was made, extending from the median to the axillary line, and placed slightly above the lower margin of the liver; it divided the rectus together with the other abdominal muscles. The liver was tilted up and the adhesions of omentum and the large and small intestines to the under surface were separated. No gall-bladder could be found, even its duct being reduced to an impermeable cord. The common duct was greatly dilated, being obstructed by two stones, one the size of a hazel-nut. These were readily crushed by pressure between the finger and thumb. In preparation for an eventual choledcho-duodenostomy, the common duct was secured to the duodenum by means of fine sutures. Temperature at the close of the operation 95°. The subsequent course of this



case was most gratifying. On the eighth day there was an evacuation from the bowels containing the fragments of the stones, and normally colored with bile.

Kocher considers the fingers as the best instrument for performing cholelithotripsy; it is most important that the seat of operation should be readily accessible, therefore a long transverse incision is desirable; and that the surgeon may clearly feel and see what he is doing, all adhesions to bowel or omentum should be carefully separated.

In this case the attack—characterized by loss of consciousness, violent spasmodic convulsions of all the muscles of the body, lasting an entire night, and followed by gall in the urine, not merely the coloring matter of gall, but all the constituents of this secretion—evidently signalled a perforation of the gall-bladder, as a result of which the viscus subsequently atrophied.

In discussing the question as to the best proper procedure to adopt in the surgical treatment of gall-stones, Senger (*Berlin. klin. Woch.*, January 13, 1890) takes exception to Langenbuch's position as to cholecystectomy being, in so far as the life of the patient is concerned, a much safer operation than cholecystotomy, and quotes Dépage's statistics (*Journ. de Méd. de Brux.*, 1888, Nos. 21, 22, 25) in favor of the latter operation. Of 72 cases, 16.2 per cent. died immediately after the operation, 25.5 per cent. were left with a permanent fistula, and 58.3 per cent. were definitely cured. The two great dangers in any operation upon the gall-bladder are bleeding and peritonitis. In the separation of adhesions, the hemorrhage is often alarming in its rapidity and persistence. The probability of peritonitis is, to a certain extent, in proportion to the length of operation, though the infection commonly arises from the diseased and infiltrated walls of the gall-bladder. That both of these complications are more probable in total extirpation than in simple incision must be granted.

The ideal operation of removing the stone, suturing the bladder, and restoring it to its normal position in the peritoneal cavity, would be universally employed could the operator feel sure that his stitches would hold. As a matter of fact, a gall-bladder is rarely incised, unless its walls are already infiltrated. Since gall-stone in itself produces no symptoms and affects the general condition not at all, till either it produces obstruction to the flow of bile by lodgement in the duct, or till inflammation of the gall-bladder walls is set up, with at first serous, finally purulent effusion—in this inflamed tissue the operator can have no assurance as to prompt union. The feeling of heaviness, the localized tenderness from which the patients suffer and for which they seek relief, must be regarded as almost positive signs that the walls of the gall-bladder are diseased. In some of these cases, especially where there are extensive adhesions, and where the gall-bladder is greatly atrophied, Zielewicz's resection of the cystic duct is applicable.

The operation which Senger strongly favors is, briefly, the suturing of the skin and parietal peritoneum after having made the first incision, the drawing out of nearly the whole gall-bladder from the peritoneal cavity, the turning over of its fundus upon iodoform gauze, protecting the abdominal wall, and the suture of its fundus to the skin to prevent retraction. In two days the gall-bladder can be incised, the stone removed, and sutures applied to restore the viscus to its normal state. If any of these fail to hold, a resection of the

resultant fistula and a renewed attempt at union can be made. When finally the suture has succeeded, the gall-bladder can be either restored to its proper position, or, being freed from the threads holding it to the skin, can be allowed to recede spontaneously.

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#### INTERMEDIATE LAPAROTOMY FOR APPENDICITIS.

DR. ROBERT F. WEIR believes (*Medical News*, March 1, 1890) that while a marked advance has been made in the pathology and treatment of perforations and gangrene of the appendix vermiformis and the abscesses that result therefrom, yet it may be questioned whether sufficient data exist at the present moment to warrant the use of so severe a recourse as a laparotomy in those cases in which the disease, previously of a threatening form, has returned once more to a period of quiet. In other words, Dr. Weir says, it cannot be considered as settled that surgery is justified in its interference by the removal of an appendix when symptoms of urgency are not present. This seems arrayed against the teaching which has emanated from so able an exponent as Mr. Treves, but he himself has verbally and otherwise stated that the application of this intermediate laparotomy must, of necessity, be an extremely limited one. In truth, both physicians and surgeons see so many cases that recover, even when an operation almost stares one in the face, especially in these subacute cases, that we feel some uncertainty in these instances.

It is only in the actively progressing troubles in the right iliac fossa that surgeons are now in accord as to the necessity of early interference. As one of those who labored to present this conclusion to the profession, Dr. Weir asks that more consideration be given to this point before accepting too hastily the maxim that the "ounce of prevention" theory applies to an appendix which has given rise to sundry previous attacks of pain, and perhaps dangerous tumefaction in the iliac region.

Though our knowledge has embraced the fact that perforative lesions of the appendix are mainly due to hardened fecal contents or to foreign bodies(?), and that such openings are prone to be followed by general or circumscribed suppurative peritonitis, we are still ignorant, in a great measure, of the simpler forms of appendical trouble, such as inflammation pure and simple, or associated after awhile with stenosis of some part of its canal, and also how often such a stenosis will beget trouble by accumulation of retained materials. Furthermore, if such a distention or inflammation takes place, how dangerous is this compared with the perforative form? or, if perforation occurs from the bursting, is it as infectious as the other kind? May not, too, these simpler troubles be at the bottom of the slighter cases that so often are seen by the family medical attendant, and which the surgeon knows personally but little about? Dr. Weir is influenced by these considerations to advocate delay in most cases in which a condition is not actually present which in itself warrants surgical interference.

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#### THE RADICAL TREATMENT OF HERNIA.

DR. D. HAYES AGNEW, in a brief article on this subject (*University Medical Magazine*, April, 1890), comes to the following conclusions: 1. The radical

plan should follow all cases of strangulated rupture in which the knife has been employed for the relief of the patient.

2. There are cases of hernia in the adult which cannot be controlled by mechanical measures, however skillfully applied. Fortunately such cases are not of frequent occurrence, but when met with, and the patient is not too far advanced in life, an operation should not be declined, as the risks from strangulation are greater than those from the knife. Dr. Agnew would not propose an operation in any case where the rupture can be perfectly retained by a truss, giving, as it does when properly fitted, so little inconvenience to the wearer.

3. Children under ten years of age who have rupture, are not proper subjects for operation. Such patients almost invariably recover after wearing a truss for two or three years. Not only so, but even in the event of strangulation occurring in these early years, and requiring an operation for the same, the subsequent use of a truss will prove to be no less efficient than had no such accident happened. This is just what might be expected, as the development which goes on with growing years, naturally tends to consolidate and strengthen the hernial passages. When failure does occur, it is to be charged to an improper, or badly fitted truss, or to inexcusable carelessness on the part of the child, or of those entrusted with the oversight of its life. The pad of the instrument should be a hard one, constructed out of deal wood or hard rubber. The entire apparatus must be adjusted with scrupulous care, fitting so neatly and evenly to the body of the patient as to cause no discomfort whatever. Nor should the truss be removed during the night, except for a short time, while the skin is becoming accustomed to the pressure, when it may be laid aside after the patient retires to bed. To render the surface of the body tolerant to the contact of the pad, the parts should daily, for some time, be well rubbed with alcohol containing some alum, or with soap liniment. The necessity for this preliminary preparation rarely extends over six or eight days, after which the instrument must be worn day and night. When from any cause the temporary removal of a truss is required, it should be done while the patient is in the recumbent position, and be replaced before rising to the feet.

In addition to the instrument habitually worn, a second one ought always to be on hand for temporary use while bathing.

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#### THE RADICAL TREATMENT OF CONGENITAL INGUINAL HERNIA.

LAUENSTEIN (*Deutsche Zeit. für Chirurg.*, 39 Bd., 3 Hft.) considers under this heading those congenital hernias occurring in the inguinal region, and complicated by an undescended testicle. Both the Kraske-Volkman method, by which the testicle is sacrificed in the effort to effect absolute closure of the inguinal canal, and the more ordinary operation of separating the testicle from the hernial sac (by cutting), closing the canal as thoroughly as possible, and endeavoring to transplant the testicle into its normal position—*i. e.*, the corresponding side of the scrotum, are unsatisfactory.

A means of both saving the testicle and thoroughly closing the internal ring, is suggested by Lauenstein. He uses not only the hernial sac but also the testicle as a barrier to the escape of the abdominal contents, after which

the inguinal canal and both rings are closed in the manner advised by Mac-ewen. Two cases are reported, both successful up to the present writing. Care must of course be taken that the testicle is not injuriously constricted in drawing the hernial sac (tunica vaginalis) within the internal ring. There is no reason to believe that this procedure would in itself interfere with the function of a healthy testicle.

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#### THE TREATMENT OF TUBERCULOUS INFLAMMATION OF THE BONES AND JOINTS BY MEANS OF IODOFORM INJECTIONS.

GARRÉ (*Correspondenz-Blatt für Schw. Aerz.*, Beilg. No. vi., 1890) states that, in the light of present experience, no one can seriously question the special, inherent, antitubercular power of iodoform. It can positively be stated that none of the therapeutical means heretofore used show such good results, in the class of cases under discussion, as are obtained by the ten per cent. olive-oil solution of iodoform. With the degenerated walls of chronic abscesses the iodoform comes in direct contact, effecting a complete change in their development and encouraging ultimate cicatrization. In the fungous masses which characterize tuberculosis of joints and bones, the drug can be brought in contact with only a very small part of the diseased tissue. Nevertheless, many surgeons have reported gratifying results from the intra-parenchymatous injections of the iodoform oil. The iodoform-ether, as prepared by Verneuil, has been abandoned in favor of Brun's oil emulsion which is used in the strength of from ten to twenty per cent. It should not be kept in the light, as this favors its decomposition, as denoted by a brown coloration. Trendelenberg injects a syringeful of this emulsion, once in eight days, into the fungous granulations. Considerable pressure is required to force the liquid into the tissues. If abscesses have been formed, these should first be emptied, then injected. Fistulas are best treated by injecting the mixture into their limiting walls rather than along their canals. The number of injections which will be required cannot be predicted. Many cases are ultimately entirely cured, others are greatly improved, with much freer motion in the affected joint, some are not benefited, but come ultimately to operation. There seems to be very slight danger of iodoform-intoxication, not even a symptom of this being observed in 109 cases thus treated.

Krause reports in the last eighteen months forty-three cases of joint disease treated by means of these injections; cases were selected which had been carefully treated by other means and where cure without operation seemed impossible, but in which fistulas were not yet formed. To prevent iodoform absorption and secure a purely local action of the drug, Krause made an emulsion by means of ether, mucilage, glycerine, and water, which contained ten per cent. of the drug. This is not to be preferred to the olive-oil emulsion, since an exceedingly small quantity of iodoform is dissolved by the oil. The injections were made under rigid antiseptic precautions. Pus was evacuated by means of a trocar and canula of medium size, the joint cavity was thoroughly flushed out with a three per cent. boric solution, and one or two ounces of the iodoform emulsion were injected. Where there was no abscess formation but simply fungous masses, the emulsion was forcibly injected into the tissues by means of a fine canula, four to six drachms

being used at a time. The pain of this procedure is slight, and rarely requires the administration of ether. After injection, passive motion is made to insure thorough distribution. The temperature rises slightly for a day or two following the treatment, but there are no subjective symptoms. The injections are repeated at intervals of two to four weeks. Pain is greatly relieved by this treatment; the swelling yields much more slowly, though in six weeks some cases show a reduction in size and a hardness of the affected part. The abscess cavities frequently fill again rapidly at first, but ultimately cease to discharge. In some cases, fistulæ form at the seat of puncture which first discharge pus, then serum, but ultimately heal entirely. In a fair percentage of cases treated in this way, definitive healing has taken place.

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#### ERASION IN JOINT DISEASE.

DR. WILLARD, in a paper on arthrectomy (*University Medical Magazine*, April, 1890), comes to the following conclusions:

1. Erosion is a conservative operation designed for the removal of tuberculous material of both soft and hard parts in the region of the articulations, with the least possible sacrifice of healthy tissue. In caseating cases which have not advanced to suppuration, if all the foci can be reached and removed most happy results will follow. In pulpy degenerations, especially at the knee, an excellent cure will usually result.
2. Erosion is not intended to supersede excision, but only to act as a substitute for it in certain cases of tuberculous bone and joint degeneration at an early stage, or in cases where destruction of the bone is limited. In children it is especially valuable, since it interferes less with the epiphyseal cells, and with the subsequent growth. It has proved of special value at the knee-joint in children, where by tenotomy and erosion repeated from time to time, excision can be delayed for several years, and the growth of the limb thereby secured. The element of time with many children is not of serious importance.
3. As excision has diminished the number of former amputations, so erosion will diminish the number of future excisions.
4. Knife, scissors, scoop, and gouge are all needed in the operation.
5. Subsequent ankylosis is usually to be expected.
6. The operation is more quickly performed than excision, produces less shock, and, if extirpation is complete, much time is gained.
7. Thorough and complete asepsis, good drainage, thorough subsequent fixation and absolute protection of the joint for a long period of time, are all essential factors in securing good results.

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## OTOLOGY.

UNDER THE CHARGE OF

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#### DISEASE OF THE EAR IN INFLUENZA.

DR. HABERMANN, of Prague, after mentioning the universal tendency of the recent epidemic of influenza to affect the ears, as shown by writers in

various parts of Europe, gives his own experience in the matter (*Prager med. Wochenschrift*, February 19, 1890). He quotes the observations of Neumann, of St. Petersburg, where the epidemic raged in November, and then those of Löwenberg, in Paris, and Dreyfuss and Baginsky, of Berlin. But these observations would not be of extraordinary merit, as ear disease is to be expected in any case of profound nasopharyngeal catarrh, were it not for the fact that later and closer observations of some of the German aurists have rendered it probable that there is a special form of middle-ear disease produced by epidemic influenza.

Thus Patrzek, of Oppeln, observed several cases of influenza-otitis media, in which the characteristic symptom was hemorrhagic extravasation about the manubrium of the malleus and the umbo, and even throughout the entire membrana; and, finally, in two cases there was a copious sero-sanguineous discharge from the ear. Dreyfuss reported cases of severe hemorrhagic inflammation of the membrana tympani, attended with serous or purulent, but rarely hemorrhagic effusion of the drum cavity. He also observed two sets of cases, one in which the symptoms showed themselves in the first day or two of the catarrhal disease; the other, in which the symptoms ensued after the influenza began to pass away, in the course of a week or two, but in which a severe nasal catarrh remained. Schwabach, of Berlin, observed in the course of two weeks sixty-two cases of otitis media, due to the effects of the influenza. These were mostly in one ear only, and in forty-two instances they resulted in suppuration. In twenty-two cases hemorrhagic effusion was detected in the tissues of the membrana tympani, and sometimes large blebs containing blood involved the entire drum membrane. In some instances the walls of the external auditory canal were infiltrated. Haug, of Munich, observed similar conditions. Habermann then states his own experience with this disease between the end of December and the end of January. In thirty-nine cases, due undoubtedly to the effects of influenza, eighteen only were simple otitis media, in which the membrana tympani was not perforated. Sixteen times the disease of the ear was limited to one side, and twice both ears were affected, and in five of the cases there were hemorrhagic effusions in the membrana tympani. Most of the cases suffered little pain, or if the latter was severe it was of short duration. Except in cases where the ears had been previously diseased, the disease left no traces behind it.

But in twenty-one cases the disease was severe, being attended with rupture of the membrana tympani and discharge from the ear. In seven of these cases blebs containing blood appeared on the membrana tympani, and in two of these cases this extravasation continued outward throughout the entire osseous canal wall. The majority of these cases were affected on the second or third day of the influenza. In others, the rupture of the membrana did not occur for weeks after repeated exacerbations of pain and inflammation in the middle ear. The observations of Habermann correspond with those of others already alluded to, viz., that in many instances during the recent epidemic, a peculiar influenza-ear-disease was observed, characterized by a hemorrhagic tendency in the membrana tympani and the osseous part of the external auditory canal.

DR. A. EITELBERG, of Vienna, corroborates, by his experience during the recent epidemic of influenza, the observations and statements of other

aurists (*Wiener med. Presse*, February 16, 1890). He had access to about one hundred cases of ear-disease occurring in connection with influenza. Extravasations of blood in various parts of the membrana tympani were frequently observed. In some cases his aid was sought for "the great hemorrhage from the ear." The mastoid was tender to pressure in most cases, but only one demanded special local treatment of the mastoid. A much more painful complication was the otitis externa which usually attended these cases. In thirty-five cases seen in private, in three instances the perforation was in the membrane of Schrapnell (the membrana flaccida). But this did not prevent a speedy recovery. The duration of the disease in all cases was, on an average, from eight to ten days. The hemorrhagic nature of the disease was fully corroborated. Old otorrhœas were rendered worse or lighted up afresh by influenza, to subside again as the acute disease vanished. On the whole, the aural disease of influenza, though peculiar, was of a mild type.

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#### AURAL LESIONS OBSERVED DURING THE RECENT EPIDEMIC OF INFLUENZA.

These observations were made by DR. J. L. GLOVER in the laryngological clinic of the Lariboisière, in Paris (*Annales des Maladies de l'Oreille*, February, 1890). The cases forming the basis of these observations were characterized by a marked predominance of catarrhal symptoms in the rhino-pharyngolaryngeal mucous membranes. All the patients were adults, and there were more women than men. The aural disease developed from the fifth to the tenth day of the grippe, and generally in from three to five days after the establishment of the rhino-pharyngeal symptoms. The other grippe symptoms were usually light, excepting the rhino-pharyngeal catarrh, which was uniformly pronounced.

All of the patients had had a violent coryza, some dysphagia, a little dysphonia, with aphonia and a cough. The fever varied from keeping the patient in bed to that which required him to stay in his room and abstain from work. There were also pain in the limbs, headache, and loss of appetite. It was also noted that in some instances the patients had previously suffered—perhaps years before—with disease of the nasal or buccal pharynx. Another fact was noted, viz., that those suffering from otitis had had, some days previous to the ear-symptoms, dysphonia, or even aphonia.

The course of the symptoms was rapid. At first there was a period of pain in which the paroxysms were often intense, with alterations in hearing, during which the objective symptoms consisted in a little redness in the annulus tympanicus and in the manubrium of the malleus. At the same time there was a catarrh of the Eustachian tube, followed soon by opacity of the membrana tympani and its immobility from the accumulation of liquid in the drum-cavity. The membrana tympani now became distended, and finally ruptured about ten days after the onset of the otitis, and then an abundant otorrhœa was established. This relieved the sufferings of the patient, but the middle ear was found in a very bad condition. In some instances paracentesis of the membrana was indicated and performed, thus limiting the ravages of the inflammation. But many of the patients presented them-

selves for the first time after the spontaneous rupture of the membrana. In one instance there was a consecutive mastoiditis, while in another the entire tympanic cavity was evacuated by the disease, the ossicles being destroyed or removed so as not to be seen. The prognosis, as regards hearing, in all the cases was considered discouraging.

The treatment consisted, in those who had no serious throat symptoms, in irrigation of the nasopharynx with a three per cent. solution of boric acid, repeated three times daily. In cases of non-suppurative otitis media warm emollient or narcotic irrigation of the auditory canal was employed, and leeches on the mastoid process. Local abstraction of blood was not considered, however, to have had any good result. Whenever the pain in the ear was severe and the membrana tympani was found to be bulging outward from the secretion in the drum-cavity, paracentesis was performed, after which the ear was washed out with a boric acid solution. Then the auditory canal mopped with cotton soaked with camphorated naphthol (one part naphthol and three of camphor).

When the patients presented themselves with a perforation in the membrane and otorrhœa already established, with the Eustachian tube more or less closed, and great deafness, the ear was syringed three times daily with boric acid solution. Every second day in such cases the fundus of the canal and the drum-cavity was mopped out with the camphor-naphthol solution named above, on cotton fastened to the cotton-holder. When necessary the Eustachian tube was catheterized, or the tympana inflated by Politzer's method. The applications of camphorated naphthol were followed at once by a cessation of the discharge.

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#### ACQUIRED ATRESIÆ OF THE EXTERNAL AUDITORY CANAL.

PROF. ADAM POLITZER, of Vienna, has contributed an interesting paper on the above-named subject to the *Annales des Malades de l'Oreille*, November, 1889. The article is based on the observation of two cases observed during life, and in which a post mortem examination was able to supplement the previous observations.

The first specimen came from a young woman who had been under the observation of Prof. Politzer for twenty years. In the early part of this period the patient had a chronic suppuration of the left middle ear, complicated by a polyp attached to the tympanic cavity. Portions of this polyp were removed by the Wilde's snare in the first months of the treatment, but unavoidable interruptions occurring, the patient absented herself from treatment for two years. At the end of that time the polyp was found to have filled the entire auditory canal and grown fast to its walls in the inner portion.

As soon as this adhesion between the polyp and the walls of the auditory canal had been completed the discharge of pus ceased entirely, and a slight facial paralysis ensued. Again the patient disappeared from observation for several years. At this time examination revealed such union between the polyp and canal-walls as to render their respective limits undistinguishable. There seemed to be a depressed diaphragm across the canal, covered with a thick layer of epidermis. There was complete deafness on this side, but no pain, no tinnitus, no vertigo, nor headache. It is thus shown that here



was a rare case of atresia of the auditory canal caused by an adhesion between a large polypus and the walls of the canal.

In the second case reported by Politzer the atresia of the auditory canal was observed in a man sixty-four years old, who had suffered with a chronic otorrhœa since the age of twelve years. The atresia had been complete for the last fifteen years of his life. Examination of the ear revealed an atresia of the canal in its osseous portion, composed of dense connective tissue, with a funnel-shaped depression at the opening of the canal. The same condition was found in both ears.

In regard to the first case, the author maintains that had the patient remained under treatment the atresia and the changes found in the deeper parts of the ear and cranial cavity could have been averted by radical treatment of the polypus.

In the second case destruction of the granulations in the auditory canal would have prevented the atresia of its passage. This can be accomplished by patient and constant destruction of granulations as they form, and the instillation of alcohol into the ear.

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#### TWO OTOLOGICAL MISTAKES.

DR. S. SZENES calls attention to two mistakes in the treatment of the ear often made by unskilful physicians—viz.: instrumental extraction of foreign bodies from the ear, and indiscreet syringing of the ear as well as the indiscriminate use of drops in the *external* ear in cases of catarrh of the *middle* ear. —*Allgem. Wiener med. Zeitung*, No. 29, 1889.

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#### A NEW PATHOGENIC MOULD FUNGUS IN THE HUMAN AUDITORY CANAL.

W. LINDT, in the *Archiv f. experiment. Pathol. u. Pharmacol.*, Bd. xxv. Hefte 3 and 4), describes a new fungus found in the human ear-canal. The fungus is blue-green, due to its colored conidia. The stems of the conidia are very short, single, and carry unbranched, colorless sterigmata. The latter surrounded the pear-shaped swelling at the end of the conidia-stem for two-thirds of its circumference in a radiate arrangement. The author names the fungus *Eurotium malignum* (*Archiv f. Ohrenheilkunde*, Bd. xxviii., Oct. 1889).

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#### FIBROMA AURICULÆ.

DR. WILHELM ANTON, of Prague, has observed and recorded the rare occurrence of a soft fibroma in the auricle. The growth of connective tissue tumors in the lobule, however, is a common occurrence (*Archiv für Ohrenheilkunde*, Bd. xxviii., October, 1889). The tumor was found in the ear of a man forty years old. His statement was that the new growth had developed in his ear within four months of the time he presented himself to Dr. Anton. His ear was said to have not been previously diseased in any way. There had never been any pain in the tumor, but it had bled when touched. Examination of the left ear revealed the presence in it of a tumor the size of a walnut, with ulcerated surface nearly filling the concha and the external auditory canal. Its color was reddish and its consistence soft. It was attached by a pedicle

and not a broad base. The tumor was removed by burning through the pedicle with the galvano-cautery in form of a loop.

The pedicle, four millimetres wide, was attached between the spina heliis and the under limb of the crura furcata. The microscope revealed the tumor to be connective tissue new-growth with alveolar structure and changes of an inflammatory nature in the connective tissue.

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#### A CASE OF DIABETIC PRIMARY OTITIS OF THE MASTOID PROCESS.

DR. OTTO KÖRNER, of Frankfurt-on-the-Main, gives an account of this disease, with some remarks on the effect of major operations on the course of diabetes (*Archiv für Ohrenheilkunde*, Bd. xxix., December, 1889). The case occurred in Dr. Körner's practice, and the facts were briefly as follows: A man, forty-seven years old, previously entirely healthy as far as he knew, took cold in his head and suffered with great pain in the right side of his head and face. The next day this pain seemed to localize itself in and behind the right ear. It grew worse, and at night became unendurable. In the course of ten days a purulent discharge set in from the painful ear, but the pain in it did not abate. Enlargement of the perforation in the membrane gave great relief to the patient, but it did not entirely cease. The absence of fever, the pallor, the continued pain in the ear, and the profuse suppuration, aroused the suspicion of some form of constitutional disorder. Trommer's test revealed the presence of sugar in the urine, though there had never been polydipsia nor excessive hunger. The sugar in the urine diminished under careful diet; but the quantity and the quality of the pus remained unchanged, as did the pulse and temperature. In the course of a month from this time, some tenderness in the mastoid was discovered, but this was slight and remained so. There was no external sign of disease in the bone. In the course of another month the appearance of the pus changed to a darker, brownish color, and increased in quantity. There was yet no bad odor to the secretion. The perforation in the membrane had become larger in the meantime, and some granulations sprang up near it. These were cauterized away with chromic acid melted on a silver probe. The patient's strength was greater, and the amount of sugar in the urine less, but the local symptoms in the ear were worse.

Körner therefore concluded that he had to deal with "an extensive, acute otitis in the mastoid cavity, with normal external surface." This latter fact seemed to render prompt opening of the pus-cavity in the bone imperative, as just in such a case extensive inroad may be very likely to occur. The fact, too, that the patient presented a brachycephalic head (index 1.10) showed that the pus cavity was near the temporal lobe, cerebellum, and the transverse sinus. Notwithstanding the bad results of operations sometimes ensuing in diabetic subjects, the dangerous nature of the mastoid disease demands a prompt operation, therefore the operation on the mastoid was undertaken, under the strictest antiseptic procedures around the region of the proposed incision and in the ear. The mastoid cortex was found entirely normal on its outer surface, but an opening in it, made at a sensitive spot behind the auricle, revealed a cavity, three millimetres from the surface of the bone, as large as a walnut, filled with soft granulations,

and comprising the entire mastoid cavity. This cavity was cleaned out and packed with iodoform gauze. After this was done the outer wall of this space, comprising nearly all the external surface of the mastoid, was chiselled off. By this means a view of the cavity was obtained, and all diseased bone removed. Neither the dura mater nor the transverse sinus was exposed. After disinfection of the wound-cavity with a sublimate solution, it was packed with iodoform gauze, and a permanent bandage placed over it. Recovery was uninterrupted. On the fourth day the external bandage was removed, and a new tampon placed in the external ear. Only a slight trace of pus was found in the fundus of the auditory canal. The tampon in the wound-cavity in the mastoid was not disturbed. The first complete change was made on the ninth day. Again on the fifteenth day the dressings were changed, when it was found that the perforation in the membrana tympani had closed. In the ninth week only a small fistulous opening was found in the wound. This closed entirely by the thirteenth week. The hearing was for a watch about ten centimetres, and for a whisper nine metres. The patient's strength returned, and he could pursue his business.

Körner regarded the suppuration in the ear in this instance rather as the result than the cause of the mastoid disease.

The question, under what circumstances can a diabetic patient be subjected to a prolonged surgical operation without risk, cannot be satisfactorily answered in a scientific manner, until a large number of cases are collected in which the diabetic excretion is determined before and after the operation. Körner claims that the case related by him shows that a diabetic patient, with a mild form of the disease, can resist a prolonged, severe operation without injury, and that the diabetes, excepting a short temporary increase in the amount of sugar excreted, was not made worse.

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## DISEASES OF THE LARYNX AND CONTIGUOUS STRUCTURES.

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UNDER THE CHARGE OF  
J. SOLIS-COHEN, M.D.,  
OF PHILADELPHIA.

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### INTUBATION OF THE ŒSOPHAGUS FOR STRICTURE.

DR. KÜMMELL presented a patient to the Aertzlicher Verein zu Hamburg (*Deutsche med. Wochenschrift*, March 6, 1890) whom he was successfully treating for an exceedingly tight stricture at the upper extremity of the œsophagus, by means of intubation with Leyden's tubes, inserted after an œsophagotomy performed for the purpose of attempting to remove a suspected carcinoma. Exploration through the wound having demonstrated the error in diagnosis, gradual dilatation was practised, and food was administered for a time by the catheter. The intubation tube became so frequently dislodged by cough and gagging, that one of the threads was purposely passed out through the fistule,

the better to keep the tube in position. The stricture was believed to be syphilitic in origin, and constitutional treatment was being pursued in addition to the dilatation.

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#### ABSCESS OF THE LARYNX AFTER INFLUENZA.

DR. MAX SCHAEFFER, of Bremen, reports (*Deutsche med. Wochenschrift*, March 6, 1890) a case of abscess of the right ventricular band and arytenoid region, requiring tracheotomy, and which occurred suddenly about a week after convalescence from a slight attack of influenza. The attendant inspiratory dyspnoea was attributed to acute paralysis of the cricoarytenoid muscles.

Schaeffer takes occasion to extol the treatment of the acute stage of influenza with sodium benzoate. This is confirmative of the observations made in the columns of this journal by Dr. Glasgow, of St. Louis, who, for three or four years past has recognized in his neighborhood the endemic presence of a disease which he could liken only to an endemic of influenza, and which he had successfully treated with sodium benzoate.

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#### ROUND CELLED SARCOMA OF LARYNX REMOVED BY LARYNGO-FISSURE.

DR. F. BESSEL-HAGEN exhibited (*Deutsche med. Wochenschrift*, March 6, 1890) a man, fifty-two years of age, from whom, a year previously, he had, after splitting the larynx, removed a broad-based round-celled sarcoma, the size of a cherry, situated below the vocal bands. He had removed the underlying perichondrium, and had also extirpated some infected glands in the neighborhood of the larynx. There had been no recurrence.

[Glandular involvement is usually a comparatively late manifestation in sarcoma; and, therefore, thorough removal of the original neoplasm is not likely to be followed by recurrence.—ED.]

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### OBSTETRICS.

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#### UNDER THE CHARGE OF

EDWARD P. DAVIS, A.M., M.D.,

PROFESSOR OF OBSTETRICS AND DISEASES OF CHILDREN IN THE PHILADELPHIA POLYCLINIC;  
VISITING OBSTETRICIAN TO THE PHILADELPHIA HOSPITAL.

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#### AN UNUSUAL INJURY TO A CHILD AT BIRTH.

HEYDRICH (*Centralblatt für Gyn.*, No. 7, 1890) reports the case of a fœtus in which it was necessary, because of prolapse of the cord, to extract the child rapidly. The left arm was easily brought down, the right was delivered with difficulty. The fœtus was slightly asphyxiated at birth, but was easily revived by Schultze's method. On the second day after birth the child died, and the post-mortem revealed a fracture of the right clavicle, with a wound

of the costal and pulmonary pleura; emphysema of the skin and pneumothorax had resulted, which finally caused death.

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#### THE PREVENTIVE TREATMENT OF PURULENT OPTHALMIA IN THE NEWBORN.

PEUCH (*Archiv de Tocologie*, No. 2, 1890) has compared the results of three series of cases: one treated by ordinary antiseptic precautions with the mother, one by the use of solutions of bichloride of mercury about the child's eyes, and one by the use of nitrate of silver, as advised in Credé's clinic. The results of these cases, with the published statistics of fifteen of the principal maternities in the world, are decidedly in favor of the Credé method. While the use of antiseptics diminishes greatly the number of these cases, yet silver was found most efficient.

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#### SYPHILITIC INFECTION IN EARLY PREGNANCY.

STEFFECK (*Zeitschrift für Geburtshülfe und Gynäkologie*, Bd. xvii. 1) describes two cases of syphilitic infection occurring in the fifth month of pregnancy previously healthy; both pregnancies went to term, but the fœtus perished as a result of the infection. Careful examination of the placenta demonstrated the fact that the maternal decidua in one case was scarcely affected, while in the other it was partially involved; the fœtal infection, however, was well marked, and pronounced syphilitic lesions were present.

This case was an exception to the statements of Fränkel and Zilles, who have taught that syphilitic infection occurring in a healthy pregnancy rarely affects the fœtus, but is usually limited to the mother.

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#### PREGNANCY LASTING 300 AND MORE DAYS.

JAFFÉ (*Centralblatt für Gynäkologie*, No. 5, 1890) reports the case of a multipara in whom gestation lasted between 300 and 309 days; counting from the time of the beginning of the last menstruation, birth occurred 365 days after the commencement of the period. The development and measurements of the child corresponded to the prolonged gestation.

The Editor recalls a recent case in his own practice, also in a multipara, labor occurring several days beyond 300 days after the beginning of pregnancy. In this case the type and development of the fœtus, and the subsequent growth of the child, fully confirmed the diagnosis of 300 days' gestation.

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#### TWO CASES OF IDIOPATHIC UNIVERSAL PRURITUS OCCURRING AT LABOR.

FEINBERG (*Centralblatt für Gynäkologie*, No. 7, 1890) reports two cases of pruritus vaginæ which at the time of labor became universal; the first case was that of a young woman in whom the disease had been worst at menstruation; during pregnancy palliative treatment mitigated suffering somewhat; at the time of labor her suffering became extreme; the itching existing over the whole body as soon as labor pains came on; anæsthesia was

necessary, and labor was terminated by the forceps. After delivery pruritus was somewhat less, and four days after labor it disappeared, and did not return.

His second case was that of a multipara who had suffered at menstruation with pruritus, and who, under the influence of great excitement, aborted. The patient was seen but once, and that in consultation. The beginning of the abortion was characterized by the spread of the pruritus over the entire body; while a neurasthenic constitution predisposed to this trouble, it was observed to be worse at menstruation and as soon as labor pains began. No lesion was found in either case to account for the disorder.

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#### A SIMPLE TUBE FOR ANTISEPTIC DOUCHES.

GRAILY HEWITT (*Lancet*, March 8, 1890) has devised glass tubes, simple in construction, which seem admirably adapted for douches. In the ordinary vaginal douche a glass tube four and three-quarters inches long, one and one-eighth inches in diameter, deeply grooved into four grooves in a longitudinal direction, has been employed to great advantage. The grooves act as channels for the easy return of the fluid, making a double current tube; rounded apertures are placed in a circle, close to the distal extremity.

For uterine injections a heavy glass tube, ten inches in length and seven-twelfths of an inch in diameter, deeply grooved at the uterine extremity for three-quarters of the whole length, is employed. It is very slightly curved at the uterine end, and has apertures near the extremity; the four deep grooves act like return tubes for the escape of fluid. The size of the vaginal tubes is so great that they cannot be easily introduced within the uterus, and hence there is less liability to the injection of fluid when simple douches are given by nurses. Intra-uterine douches should be given by physicians only.

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#### THE HIGH APPLICATION OF THE FORCEPS.

COHNSTEIN (*Archiv für Gynäkologie*, Band 36, Heft 2) reviews the current opinions regarding the compression of the head produced by forceps, and its moulding to the pelvis, and states the results of his own experiments. He believes that the foetal skull is more easily fractured and less elastic in the dead foetus than the living, and suggests that all experiments be made upon foetal bodies which have been immersed in dilute saline solution at a temperature of 100° F.

He has found that compression in the antero-posterior diameter of the head leaves the biparietal diameter without lessening in 55 per cent. of cases; in 20 per cent. it is increased in size; in 25 per cent. diminished. In 80 per cent. of such cases, when the antero-posterior diameter was lessened from one-tenth of an inch to five-tenths of an inch, no increase in the biparietal diameter, and no injurious compression of the maternal soft parts were observed. The biparietal diameter is rarely lessened more than one-twelfth to one-fifteenth of an inch. Increase in the biparietal diameter, from one-tenth to two-tenths of an inch, depends on the form of the skull and the degree of the pressure; in dolichocephalic skulls, and under strong pressure, increase occurs, this being observed in actual practice in about 8 per cent.

of cases. If compression is made in the biparietal diameter, the antero-posterior is unaffected in 50 per cent., increased in 28.5 per cent., lessened in 21.3 per cent. In the great majority of cases compression of the biparietal diameter does not increase the antero-posterior; occasionally uterine pressure and pressure on the pelvic walls shorten the transverse diameter and lengthen the antero-posterior, and the forceps merely reinforce this action. Compression of both parietal and antero-posterior diameters of the head results in some increase in the vertical. The heads of living children are compressed with less force than in the cadaver.

In practice Cohnstein believes in bringing the head to engage with axis-traction forceps, removing them, and reapplying if labor does not go on. He has found great advantage in applying forceps, steadying the head, and then performing craniotomy without removing the forceps, completing labor by extracting the perforated head by forceps. He would use forceps only as an adjuvant to the natural forces of labor. In symmetrically contracted pelvises their use has been most advantageous.

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#### THE FORCEPS AS A ROTATOR.

At a recent meeting of the Obstetrical Society of Hamburg, ALY (*Centralblatt für Gynäkologie*, No. 5, 1890) reported a recent case of occipito-posterior position, in which labor made no progress through failure in the expulsive forces. The forceps were applied to the sides of the child's head obliquely in the pelvis, and traction made until the sagittal suture lay transversely; the forceps were then removed, and reapplied in the opposite oblique diameter; rotation followed, with the birth of a large and living child.

In discussion, LOMER did not favor such use of the forceps. He recalled a recent case in his practice where such injury had been done to the mother as to cause her ultimate death. Recent literature upon the subject does not favor this practice; he considered it far better to extract the child with forceps, the occiput remaining posteriorly; in large pelvises it was better to bring down the head with forceps, remove the blades, and complete rotation by the hand.

OLSHAUSEN would restrict such use of the forceps to experts only; he had often found the introduction of one blade sufficient to cause rotation.

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#### THE KNEE-CHEST POSITION IN THE DELIVERY OF SHOULDER PRESENTATIONS.

WELLS (*American Journal of Obstetrics*, March, 1890) reports nine cases of shoulder presentation, in which version was best performed with the patients in the knee-chest position. He operates by placing the patient upon her knees and chest, stationing himself on that side of the patient corresponding to the position of the foetal head, and employs the hand next the patient in the internal and the other in the external manipulations. After the introduction of the hand the membranes are ruptured, if yet intact, and pressure is made upon the shoulder toward the child's pelvis in the direction toward the foetal and uterine curves, and away from the superior strait, and at the same time pressure is made externally upon the foetal head, or breech, as

seems needed. The shoulder soon passes out of reach, and the head takes its place at the pelvic brim. The patient is now raised upright upon the knees, and supported in this position until the head engages, after which she lies down.

It is occasionally impossible to bring down the head, and then the breech is brought down; if both these procedures are impossible, the feet are sought for and podalic version is made. Ordinarily the fingers or hand need enter the uterus but a very short distance.

Wells claims that in this position the abdomen is relaxed to the greatest possible extent, the pains are less powerful, the uterus is lengthened in its long and shortened in its transverse diameter, and the impacted shoulder is drawn from the pelvic brim by the force of gravity.

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## GYNECOLOGY.

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UNDER THE CHARGE OF

HENRY C. COE, M.D., M.R.C.S.,  
OF NEW YORK.

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### HERPES MENSTRUALIS.

BERGH (*Hospitals-Tidende; Centralblatt für Gynäkologie*, February 8, 1890), from an experience of twenty-four years in the hospital for venereal diseases in Copenhagen, finds that 2.6 per cent. of prostitutes have *herpes vulvaris*. Out of 877 cases of herpes, 73.4 per cent of the women were menstruating when examined, and many stated that they had the eruption only at the time of their period. It had no apparent connection with previous venereal troubles, or with their practice of indulging in sexual intercourse during the flow. Bergh believes that vulvar herpes is nearly always a menstrual exanthem, probably of trophic origin. The vesicles are most numerous immediately before the flow. They appeared in 70 per cent. of the cases on the labia majora.

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### THE ENDOMETRIUM DURING AND AFTER MENSTRUATION.

VON KOHLDEN (*Centralblatt für Gynäkologie*, February 1, 1890) states that immediately after menstruation large gaps are seen in the superficial layer of epithelium, and that during menstruation the entire epithelial layer is cast off, and that there is infiltration and hemorrhage into the mucosa. This infiltration may extend through two-thirds of the thickness of the latter. The blood-clots which are found within the uterus contain desquamated epithelium and glands. No true solution of continuity of the endometrium can be established. The writer has never been able to find the giant-cells described by Leopold, or evidence of dilatation and tortuosity of the glands. The reproduction of epithelium begins *de novo* within the glands, not from islands of cells which were not cast off; there is also a new formation of bloodvessels.



## THE ETIOLOGY OF VESICAL GANGRENE.

HAULTAIN has a paper on this subject in the *British Gynecological Journal* for February, 1890, in which he carefully analyzes the reported cases. His deductions are as follows:

1. This condition consists in necrosis of the wall of the bladder, due to coagulation and exudation ;
2. The process may affect the epithelial layer alone, it may be limited to the mucosa and submucosa, or it may involve all the layers ;
3. It is always due either to prolonged retention or to parturition ;
4. It is directly due to pressure on the neck and base of the bladder, with resulting interference with the circulation.

## VENTRO-FIXATION OF THE UTERUS (LAPARO-HYSTÉROPLEXIE).

DUMORET's monograph on this subject (abstracted in the *Centralblatt für Gynäkologie*, February 1, 1890) is based on a study of twenty-five cases, five recent ones being Ferrier's. The latter fixes the uterus by three catgut sutures, which are passed through all the layers of the abdominal wall, with the exception of the skin, and then deeply into the substance of the uterus. They are not buried in the latter, but emerge and re-enter two or three times. A drainage-tube is inserted at the lower angle of the wound.

## THE OPERATIVE TREATMENT OF RETROFLEXION OF THE UTERUS.

FROMMEL (*Centralblatt für Gynäkologie*, February 8, 1890) describes an ingenious operation which aims at retaining the uterus in its normal position by shortening the utero-sacral ligaments, the importance of which structures as a factor in preventing retro-displacement has been emphasized by Schultze. The patient is placed in Trendelenberg's posture, the elevation of the pelvis causing the intestines to gravitate downward. The uterus is freed from its adhesions, and is drawn well forward. Each utero-sacral ligament is then transfixed near its attachment to the uterus, and is sutured to the peritoneum covering the lateral wall of the pelvis. The ligaments are thus drawn outward nearly at right angles to their former direction, and so much backward traction is made upon the cervix that the uterus is kept in a position of anteversion. Silk is preferable to catgut, as the latter does not hold long enough. The advantage claimed for this method is that the uterus is not fixed, but moves backward and forward as the bladder fills and empties.

[In the last edition of Byford's *Diseases of Women* a similar operation is described, and several cases are reported. Its theory is excellent, but the practice must be both difficult and dangerous.—Ed.]

## VAGINAL FIXATION OF THE RETROFLEXED UTERUS BY SCHÜCKING'S METHOD.

SCHÜCKING (*Centralblatt für Gynäkologie*, February 22, 1890) states that sixty-two cases have now been reported. In the first twenty the silk ligatures were removed too soon, and no pessary was used, nevertheless twelve patients were permanently cured. In the last forty-three cases there was not a single failure, but as the majority of the operations were performed during the past

year, it is too early to report positive results. The writer opposes ventro-fixation, on the same grounds as Freund, viz, that "the non-gravid uterus does not belong in the abdominal, but in the pelvic cavity."

The following points should be remembered in regard to the technique. The ligatures should be left *in situ* for eight or ten weeks. A pessary must be introduced at once. If the urine is bloody, showing that the bladder has been wounded, the organ should be irrigated with a solution of thymol, and a pencil of iodoform or salol should be inserted into it. The uterus should be drawn down slowly and steadily, until the operator satisfies himself that the needle can be passed beneath the right pubic bone. The point of the needle must be protruded at the fundus, and not lower down on the anterior uterine wall. To avoid cutting through the anterior lip of the cervix with the ligature, the latter may be passed through a round button, or it may be carried directly through the substance of the lip. It should be noted that the suture does not pass behind, but close beside the bladder. There are no contra-indications to this operation. It is only necessary to free the adhesions first according to Schultze's method.

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#### STATISTICS OF VAGINAL HYSTERECTOMY.

KALTENBACH's most recent statistics (*Centralblatt für Gynäkologie*, February 15, 1890) include fifty-eight cases of vaginal hysterectomy for cancer of the uterus, with two deaths. In forty-nine the disease was confined to the cervix. Twenty patients had been operated upon within a year, eight of whom were known to be well. There were nine cases of carcinoma of the body of the uterus without recurrence, and two of sarcoma, with one recurrence. Of thirty-five patients who had been operated upon over a year before, nineteen had recurrence within the first year and two had not been heard from. The writer advises vaginal extirpation as soon as the disease has extended above the vaginal junction. He practises rigid antisepsis during the operation, and closes the peritoneal wound. If the ureter is wounded and a uterine fistula is formed, he recommends making a vesico-vaginal fistula and performing kolpoplexis, in preference to immediate nephrectomy.

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#### EXTIRPATION OF THE UTERUS AND THE PELVIC CONNECTIVE TISSUE.

PAWLIK (reprint from *Internationale klinische Rundschau*, Nos. 26, 27 and 29, 1889) describes an ingenious method of excising suspicious parametric bands and indurations after complete extirpation of the cancerous uterus.

From observations upon the manner of recurrence after galvano-caustic amputation of the cervix, he has noticed that it is apt to occur at the base of the broad ligaments and in the sacro-uterine folds. Hofmeier emphasizes the fact that hard parametric nodules accompanying cancer of the cervix may not change their form for years, but finally assume a malignant character. Ruge and Veit call attention to the frequency with which the broad ligaments are invaded, but believe that it is impossible to remove entirely the diseased parametric tissues because of the proximity of the ureters. Schroeder pointed out the importance of excising all the diseased tissue, but

feared injury to the ureters. "The indurations in the connective tissue," he said, "are beyond the reach of the knife."

Pawlik describes three cases in which he first located the ureters by catheterizing them, and then boldly excised all the indurated tissue, in one instance following along the base of the broad ligament as far as the lateral wall of the pelvis. The patients made a rapid recovery, although the writer frankly acknowledges that he does not expect a permanent cure, but that the method seemed to promise larger freedom from recurrence in advanced cases than usually followed simple curetting and cauterization. The hemorrhage which attends the radical operation is not severe, as the vessels can be ligated *en masse* before the tissues are divided. When the ureter can be plainly felt, as is the case when a catheter is inserted into it, the operator can boldly invade the broad and utero-sacral ligaments to an extent which was not before possible. Since it is impossible to decide whether a given parametric induration is simply inflammatory, or is malignant, all suspicious bands and nodules should be excised.

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#### THE RESULTS OF CASTRATION FOR THE CURE OF FIBROMA UTERI.

WIEDOW (*Centralblatt für Gynäkologie*, February 15, 1890) reports sixty-six cases of oöphorectomy with five deaths (7.6 per cent.). Thirty-seven patients had been under observation for three or more years. In twenty-one the menopause was established at once; in fifteen after a few months. In twenty-four the tumor disappeared entirely; in eight it diminished perceptibly, and in one there was no change. Wiedow advises hysterectomy only in the case of pedunculated tumors, fibro-cysts, and tumors of unusual size.

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#### GONORRHEAL SALPINGITIS.

SCHMITT (*Archiv für Gynäkologie*, Bd. xxv. Heft 1), from observations in one hundred and sixteen cases, arrives at the following conclusions: In only twenty-seven cases was accompanying pelvic peritonitis noted. From the frequency of the latter complication in connection with non-specific salpingitis, it seems as if the number of women with gonorrhœa who have gonorrhœal affections of the tubes is relatively small. The extension of gonorrhœa along the entire genital tract takes place mostly within the first two months after infection. The accompanying peritonitis is due to the escape of pus through the ostium abdominale; this pus acts simply as a chemical irritant, and not by virtue of the contained gonococci. The fatal peritonitis which follows rupture of a pyosalpinx is the result of mixed infection.

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#### RUPTURE OF PYOSALPINX INTO THE VAGINA.

VEIT (*Zeitschrift für Geb. u. Gyn.*, Bd. xvii., Heft 2) reports four cases in which he noted the following points of difference between pyosalpinx and ordinary pelvic abscess: Abscess of the tube is slower in its formation, and the general symptoms previous to rupture are less marked. The walls of the tube are thicker than those of an ordinary abscess-cavity, and do not collapse after the pus is evacuated; air enters the tube and its contents become more septic, and accompanying perimetritis increases. Spontaneous healing

is only obtained by prolonged drainage and the use of astringent applications to the sac. Extirpation of a pyosalpinx after rupture *per vaginam* is a dangerous procedure. Laparotomy should not be performed if the fistulous tract shows a disposition to heal.

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#### ADHERENT INTESTINES MISTAKEN FOR PYOSALPINX.

DOLÉRIS (*Nouvelles Archives d'Obstét. et de Gynécologie*, 1889, No. 81) reports a case in which, by vaginal examination, he detected what seemed to be an undoubted pyosalpinx in Douglas's pouch. On opening the abdomen, the supposed tube proved to be an adherent coil of intestine. In two other instances the writer made a similar error, and does not see how it is possible to avoid it in some cases.

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#### TUBERCULOUS PERITONITIS.

LINDFORS, in a monograph on this subject (abstract in *Centralblatt für Gynäkologie*, February 15, 1890), analyzes one hundred and nine recorded cases, which he divides into seven classes. The acute variety may assume the form of circumscribed, general, or suppurative peritonitis; in the chronic there may be a free or an encysted effusion, there may be simple adhesions, or the intestines may be so adherent as to cause obstruction. Lindfors thinks that the presence of acute or chronic pleurisy has an important bearing on the diagnosis of tuberculous peritonitis. He is strongly in favor of laparotomy and the free use of iodoform within the cavity.

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#### IS IODOFORM AN ANTISEPTIC?

TILANUS and KRONACHER discuss this question in the *Münchener med. Wochenschrift*. The former found that the *micrococcus putridus* flourished in culture-fluids containing a large amount of iodoform, and that the activity of the *staphylococcus pyogenes aureus* was unimpaired by the presence of the drug. He warns surgeons against depending upon iodoform to the exclusion of other antiseptics of known power. It may act well in wounds by setting free iodine. Kronacher studied the action of the drug when added to cultures of the bacilli of erysipelas, charbon and glanders, and decides that it may, when used locally, prevent disintegration of tissue, but that it is *not* an antiseptic since it does not kill germs.

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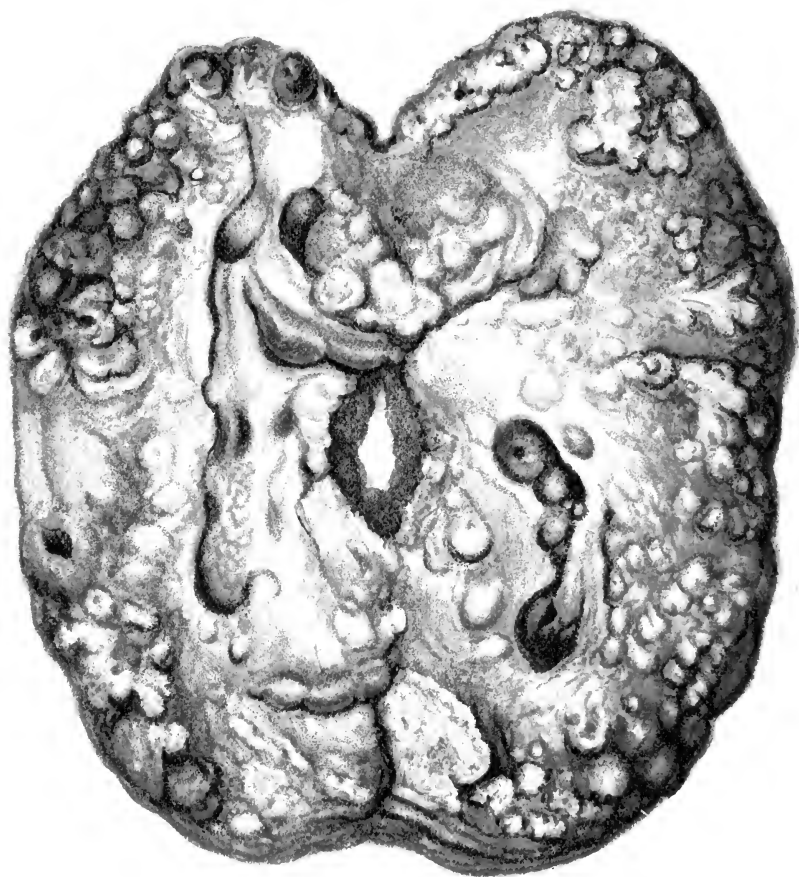
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OF THE MEDICAL SCIENCES.  
JUNE, 1890.

THE CONDITION OF THE BLOOD IN CHLOROSIS.

NOTES ON THE COURSE AND SECONDARY SYMPTOMS OF CHLOROSIS.

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IN the reports of five of the leading New York hospitals, for the year 1888, there were recorded 165 cases of "simple anæmia" in a total of 2250 female medical patients—that is, more than seven per cent. of all the female medical patients were cases of "simple anæmia." When we remember that more of these patients are treated in the out-patient departments than in the hospital wards, the disease seems still more common. In fact, we must consider it one of the most common of diseases.

The term "simple anæmia," as it is used in these reports, is usually synonymous with the term "chlorosis," as it is found in medical literature; we understand chlorosis to be a disease of young women<sup>1</sup> characterized by pallor, weakness, cardiac palpitation, "anæmic" cardiac murmurs, dyspnœa on exertion, disordered menstruation, fugitive pains, abnormal appetite, and constipation; these symptoms diminishing on the administration of iron, or of iron and laxatives.

Although the disease is so common, our knowledge of it is very indefinite. We know very little of its etiology. There is much dispute about the state of the blood, as to whether there is poverty in red corpuscles or only in hæmoglobin, as to the peculiarities of the blood-building under

<sup>1</sup> The few cases which are recorded in boys may be regarded as exceptions.  
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treatment, and as to what extent the condition of the blood may be used as a guide in diagnosis and treatment.

From a clinical standpoint we find the diagnosis often missed, secondary symptoms are mistaken for the main disease; or, on the other hand, pale patients are treated for chlorosis when the pallor is due to something else.

From a therapeutic standpoint we find improvement general, but many failures to effect a cure.

Hoping to make a slight addition to our knowledge of the subject and to demonstrate the possibility and desirability of more general blood examination for clinical purposes, I wish to record the results of the study of thirty-one cases of chlorosis as they have been treated in Roosevelt Hospital, New York City. No cases are mentioned which did not have enough of the above-mentioned symptoms to place the diagnosis beyond doubt.

The blood examinations were made to show the number of red corpuscles per c.mm., and the percentage of hæmoglobin during the different stages of the disease; certain observations of the size and shape of red corpuscles and of the number of white corpuscles were also made. The corpuscle numeration was done with the hæmacytometer of Thoma-Zeiss. Five per cent. seems a fair allowance for errors; this is the allowance granted by Lyon and Thoma (<sup>1</sup>). Ten estimations of blood from the same person gave results well within this limit. Two hundred squares were counted for each estimation. The instrument used gave 5,200,000 corpuscles per c.mm. as the average of ten counts from blood of healthy men and boys. In order to eliminate any errors which might come from the different methods of different observers the estimations were all made by the writer.

The patients were generally given five-grain Bland's pills (iij to vij t. i. d.) and oxygen inhalations (gallons x b. i. d.), with symptomatic treatment for constipation and other by-symptoms.

*Changes in the Number of Red Corpuscles.*—It is my purpose to consider, first, the number of corpuscles when the patients were admitted to the hospital, and the relation between this number and the condition of the patients; next, the changes under treatment and their relation to the patient's condition; and, finally, the number after treatment.

There are thirty-four series of red corpuscle estimations, as three of the thirty-one patients were treated for relapses.

*On admission* the number of red corpuscles varied between 5,100,000 and 1,800,000 per c.mm.; the distribution between these points was fairly regular, as may be seen in this table:

<sup>1</sup> The small figures in parentheses refer to the bibliography.



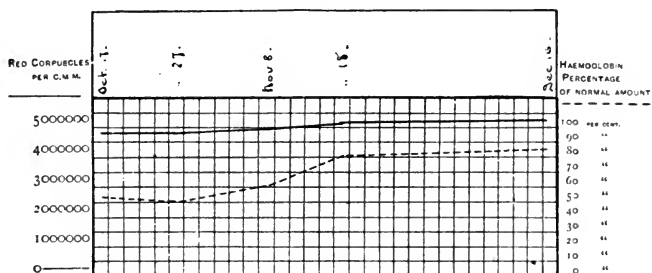
## NUMBER OF RED CORPUSCLES ON ADMISSION.

5,100,000 . . . . .	per cubic millimetre,	1 patient.
4,500,000 to 5,000,000	" " "	4 patients.
4,000,000 " 4,500,000	" " "	7 "
3,500,000 " 4,000,000	" " "	5 "
3,000,000 " 3,500,000	" " "	5 "
2,500,000 " 3,000,000	" " "	6 "
2,000,000 " 2,500,000	" " "	5 "
1,800,000 . . . . .	" " "	1 patient.

Average 3,256,000

In a general way, the severity of the symptoms corresponded with the paucity in red corpuscles, but there were many exceptions to this. It is

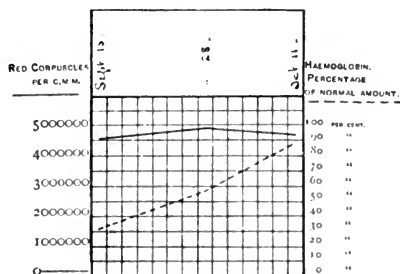
CHART 1.



Case 1. The continuous upper line indicates the number of red corpuscles, the broken lower line indicates the percentage of the normal amount of hæmoglobin.

to be especially noticed that many of the patients who had a good number of corpuscles were suffering greatly from the disease—*e.g.*, cases 1,

CHART 2.

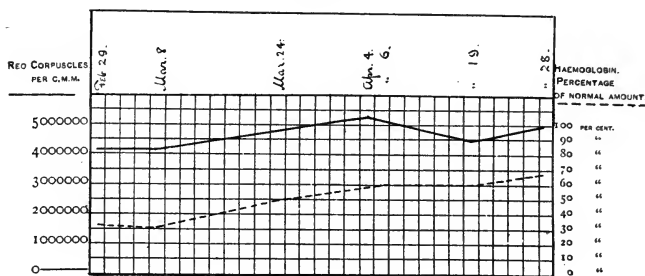


Case 3.

2, 3, and 4, who had each more than 4,500,000, and Cases 5 and 6, and 7 on first admission, who had each more than 4,000,000; yet these seven

cases were among the severer ones in the series; two of them could not walk more than a city block at an ordinary gait without very great exhaustion. Again, Case 8, on first admission, had 2,812,000; eleven months later she was treated for a relapse, and then had on admission 4,162,000. The difference in her symptoms on these two admissions did not at all correspond with this difference in the number of red corpuscles.

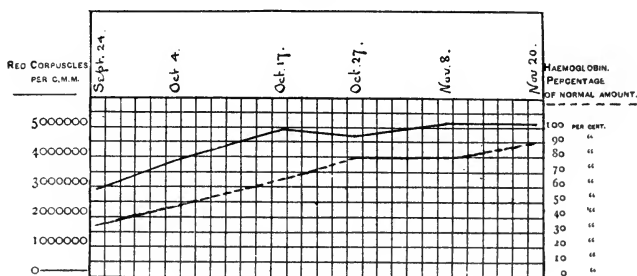
CHART 3.



Case 7. First admission.

A similar condition existed in Case 7, who, on first admission, had 4,204,000 red corpuscles per c.mm., and, on admission for a relapse seven months later, 2,932,000, and her symptoms were fully as bad on the first as on the second admission.

CHART 4.



Case 7. Second admission.

During the treatment there was an increase in the number of red corpuscles, but there were numerous variations and irregularities in this increase, ten cases at some stage of the treatment showing a diminution of 300,000 or more per c.mm.; this diminution was usually not from the number on admission but from the number attained at some time while under observation.

## RECORD OF BLOOD EXAMINATIONS.

	Red corpuscles, per c. mm.	Hæmoglobin, percentage of normal amount.	
Case 1 (see chart).			
Case 2 . . . . .	4,684,000	*45 per cent.	May 3.
	4,626,000	*56 "	May 18.
	4,328,000	*55 "	May 29.
	5,078,000	*70 "	June 6.
Case 3 (see chart).			
Case 4 . . . . .	4,660,000	. . . . .	March 29.
	4,900,000	. . . . .	April 5.
	5,200,000	. . . . .	April 14.
	*5,650,000	. . . . .	April 19.
Case 5 . . . . .	4,350,000	45 per cent.	June 20.
	4,800,000	70 "	June 29.
	4,800,000	95 "	July 14.
Case 6 . . . . .	4,422,000	65 "	Nov. 3.
	*3,988,000	65 "	Nov. 14.
	4,796,000	65 "	Nov. 26.
	4,464,000	75 "	Dec. 22.
Case 7 (see chart).			
Case 8 (first admission) .	2,812,000	30 per cent.	Nov. 22.
	3,054,000	40 "	Dec. 6.
	3,660,000	50 "	Dec. 11.
	4,876,000	60 "	Dec. 27.
	4,798,000	70 "	Jan. 4.
Case 8 (second admission)	4,162,000	50 "	Oct. 17.
	4,476,000	*55 "	Oct. 27.
	4,622,000	68 "	Nov. 8.
	4,984,000	80 "	Nov. 20.
Case 9 (see chart).			
Case 10 (see chart).			
Case 11 . . . . .	2,542,000	25 per cent.	Jan. 30.
	3,452,000	*45 "	Feb. 15.
	4,990,000	*85 "	March 7.
	3,982,000	75 "	March 19.
Case 12 (first admission) .	1,976,000	. . . . .	March 7.
	2,196,000	. . . . .	March 8.
	2,400,000	. . . . .	March 16.
	4,400,000	. . . . .	March 29.
Case 12 (second admission)	2,184,000	18 per cent.	Aug. 15.
	2,086,000	*18 "	Aug. 21.
	4,080,000	45 "	Sept. 8.
	4,650,000	75 "	Sept. 22.
	4,324,000	62 "	Oct. 4.
	4,086,000	68 "	Oct. 17.
Case 13 (see chart).			
Case 14 . . . . .	4,308,000	50 per cent.	Dec. 14.
	5,106,000	*45 "	Dec. 23.
	. . . . .	*38 "	Jan. 6.
	. . . . .	*55 "	Jan. 16.
	4,706,000	*80 "	Jan. 30.
Case 15 . . . . .	5,026,000	*60 "	March 12.
	. . . . .	65 "	March 27.
	4,206,000	*85 "	April 6.
	4,598,000	*62 "	April 16.
	4,926,000	*65 "	April 30.
Case 16 . . . . .	3,274,000	40 "	Nov. 16.
	3,066,000	50 "	Nov. 26.
	3,946,000	75 "	Dec. 10.
	4,798,000	80 "	Dec. 22.
	4,540,000	75 "	Jan. 5.

	Red corpuscles, per c. mm.	Hæmoglobin, percentage of normal amount.	
Case 17 . . . . .	2,456,000	*30 "	Feb. 20.
	4,380,000	*50 "	March 7.
	4,600,000	. . . . .	April 3.
	4,810,000	*65 per cent.	April 16.
	4,832,000	*65 "	May 3.
Case 18 . . . . .	2,574,000	20 "	Nov. 14.
	4,198,000	55 "	Nov. 30.
	4,674,000	60 "	Dec. 15.
Case 19 . . . . .	2,700,000	*23 "	Sept. 16.
	3,600,000	50 "	Sept. 26.
	3,722,000	*70 "	Oct. 6.
	4,228,000	75 "	Oct. 17.
	4,718,000	*75 "	Oct. 26.
Case 20 . . . . .	5,084,000	80 "	Nov. 4.
	4,050,000	43 "	Nov. 9.
	4,374,000	58 "	Nov. 20.
	4,592,000	*68 "	Nov. 30.
	4,888,000	75 "	Dec. 15.
Case 21 . . . . .	3,114,000	30 "	Nov. 16.
	2,902,000	35 "	Nov. 26.
	3,394,000	45 "	Dec. 6.
	3,960,000	60 "	Dec. 11.
Case 22 . . . . .	3,992,000	*37 "	June 25.
	3,996,000	*65 "	July 10.
	5,480,000	*75 "	July 20.
Case 23 . . . . .	2,332,000	34 "	Nov. 9.
	3,888,000	43 "	Nov. 20.
Case 24 . . . . .	3,342,000	31 "	Nov. 5.
	3,384,000	50 "	Nov. 17.
Case 25 . . . . .	4,104,000	55 "	Sept. 20.
	4,790,000	60 "	Sept. 29.
	. . . . .	75 "	Oct. 11.
Case 26 . . . . .	3,072,000	45 "	Dec. 19.
	4,840,000	52 "	Dec. 30.
	4,750,000	50 "	Dec. 31.
Case 27 . . . . .	3,620,000	. . . . .	March 7.
	4,300,000	. . . . .	March 30.
	5,200,000	. . . . .	April 6.
Case 28 . . . . .	3,600,000	. . . . .	March 30.
	3,900,000	. . . . .	April 6.
	4,876,000	. . . . .	April 14.
Case 29 . . . . .	3,676,000	. . . . .	March 29.
	3,900,000	. . . . .	April 6.
	4,120,000	. . . . .	April 14.
	5,000,000	. . . . .	April 21.
	4,840,000	. . . . .	April 29.
Case 30 . . . . .	2,300,000	. . . . .	April 21.
	3,800,000	. . . . .	April 30.
	4,100,000	. . . . .	May 10.
	4,620,000	. . . . .	May 20.
Case 31 . . . . .	3,600,000	. . . . .	May 3.
	4,600,000	. . . . .	May 13.
	5,000,000	. . . . .	June 2.
	. . . . .	*85 per cent.	June 8.
	5,100,000	. . . . .	June 14.
	5,400,000	90 per cent.	June 27.

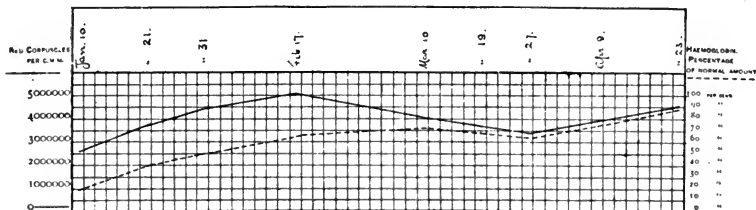
\* Verified by a second examination.

## DIMINUTION IN RED CORPUSCLES DURING TREATMENT.

Case 2,	4,684,000	to	4,328,000	per cubic millimetre.
" 6,	4,796,000	"	4,464,000	" "
" 7,	5,324,000	"	4,350,000	" "
" 9,	5,180,000	"	4,354,000	" "
" 10,	5,064,000	"	3,428,000	" "
" 11,	4,990,000	"	3,982,000	" "
" 12,	4,650,000	"	4,086,000	" "
" 13,	2,662,000	"	2,354,000	" "
" 14,	5,106,000	"	4,706,000	" "
" 15,	5,026,000	"	4,206,000	" "

These variations are best shown in the charts and tables of blood estimations. Except in Cases 10, 11, and 12, the symptoms did not correspond with them, and in 10 and 11 the change in symptoms was not proportionate to that in corpuscles. The fallacy of judging the condition of the patient from the number of corpuscles would have been great; for instance, Cases 1, 2, and 3 would have been declared free from anæmia if the blood test had consisted simply of a corpuscle enumeration, yet these three cases averaged only 41 per cent. of the normal amount of hæmoglobin and were suffering greatly from anæmia. Again, Case 10 would have been pronounced better February 17th than April

CHART 5.



Case 10.

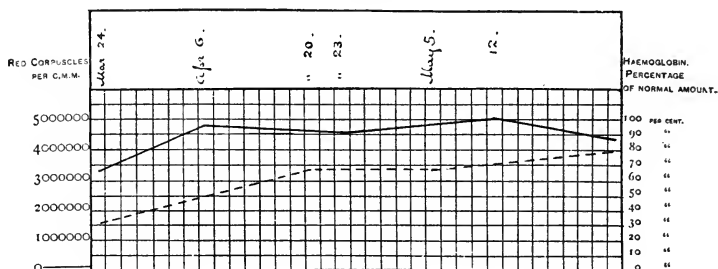
23d, yet she had 23 per cent. more hæmoglobin April 23d, and was much stronger and better. From these considerations we can endorse Hayem's (2) statement that "the red corpuscles are a very changeable element of the blood." The simple estimation of their number is certainly of very little clinical value in chlorosis. On discharge from the hospital the condition was as follows:

## NUMBER OF RED CORPUSCLES ON DISCHARGE.

More than 5,000,000	per cubic millimetre,	8 patients.
4,500,000 to 5,000,000	" " "	17 "
4,000,000 " 4,500,000	" " "	4 "
3,500,000 " 4,000,000	" " "	4 "
3,400,000 " . . . . .	" " "	1 patient.
Average 4,704,000		

It thus appears that it is usually easy to bring the number of red corpuscles above 4,500,000 per c.mm. The five cases who had less than 4,000,000 on discharge, left the hospital before treatment was completed. Of the four who had between 4,000,000 and 4,500,000, one was pregnant and one left before treatment was completed; but there were two (Cases 9 and 6) who were treated respectively nine and seven weeks, they had a diminution in the number of corpuscles before discharge.

CHART 6.



Case 9.

*Change in Shape and Size of Red Corpuscles.*—Blood from seven patients who were notably anæmic was drawn into a one per cent. watery solution of osmic acid; it showed large, small and irregular-shaped red corpuscles, the average diameter appearing less than normal.

*The number of white corpuscles* was estimated in twelve patients. The ratio was one white to about four hundred red.

*Changes in the Hæmoglobin.*—The hæmoglobin estimations were made with the Fleischl hæmometer. The results are given in percentages of the normal amount of hæmoglobin—i.e., 100 per cent. indicates the normal, 50 per cent. one-half the normal amount. Numerous estimations of the blood of healthy persons have convinced me that the standard of the instrument used is correct. The results of two series of ten consecutive examinations of the blood of one person correspond within 4 per cent.

With this instrument I made twenty-eight series of hæmoglobin estimations. The results were much more uniform and much more satisfactory than in the enumeration of the blood corpuscles; the severity of the symptoms was found to correspond pretty closely with the poverty in hæmoglobin; hence, as a guide to the condition of the patient, the estimation of the hæmoglobin is much more valuable than the enumeration of the blood corpuscles.

An initial poverty in hæmoglobin was universal; so was an increase under treatment, and this increase was fairly regular, showing less variation than in the corpuscles.

This table shows the

PERCENTAGE OF HÆMOGLOBIN ON ADMISSION AND ON DISCHARGE:

				Admission.	Discharge.
91	per cent.	to	100 per cent.	0	1
81	"	"	90 "	0	5
71	"	"	80 "	0	11
61	"	"	70 "	2	5
51	"	"	60 "	3	4
41	"	"	50 "	5	2
31	"	"	40 "	9	0
21	"	"	30 "	5	0
15	"	"	20 "	3	0
Average 37½ per cent.				Average 72½ per cent.	

It is noticeable that the percentage on admission was very low; more than one-half the cases had less than 40 per cent., three cases less than 20 per cent. of the normal amount, a diminution in hæmoglobin as great as that usually found in pernicious anæmia.

It is also noticeable that the hæmoglobin rarely reached the normal; only 6 of the cases registered above 80 per cent. when discharged. The 6 patients who registered below 61 per cent. left the hospital before treatment was completed; the same is true of 9 of the 16 who were between 60 per cent. and 81 per cent., the tenth was pregnant, the eleventh had a complicating nephritis which delayed convalescence, and the twelfth had a thrombosis of the internal saphenous vein, but there were 4 who were treated 7 weeks or more with no apparent cause for the failure to bring the hæmoglobin percentage higher, viz., Cases 12, nine weeks, and Cases 6, 11, and 15, each seven weeks. A similar condition was reported by Gräber (<sup>3</sup>) in 28 cases of chlorosis. The hæmoglobin did not reach the normal under treatment.

It is to be further noticed that the poverty in hæmoglobin always exceeded that in red corpuscles. This has often been stated as a constant condition in chlorosis; it certainly sometimes occurs in other diseases—*e. g.*, chronic phthisis and chronic Bright's disease.

In these cases the amount of hæmoglobin has been by far the best single guide there was to the patient's condition; whenever there has been a marked disparity between hæmoglobin and corpuscles the symptoms corresponded with the hæmoglobin, not with the corpuscles; in fact, the number of corpuscles gave a very poor guide to the patient's condition, and the percentage of hæmoglobin a very good one.

This is very important; the hæmoglobin estimation is an easy one; the corpuscle estimation is a tedious one. It takes three-quarters of an hour to make a careful corpuscle estimation, and one would hardly be willing to depend on a single count unless he had had considerable experience in the use of the instrument; moreover, a microscope must

be used, and this is often a great inconvenience. These difficulties are so great that the number of corpuscles is not likely to be estimated extensively in clinical work.

On the other hand, the hæmoglobin estimation can be made in five to ten minutes, and duplicated in another five minutes, if desired; the instrument is small and easily carried, the technique is simple, no microscope is needed.

I see no reason why the hæmometer should not be one of the ordinary diagnostic instruments used by general practitioners.

There is good authority for the belief that the hæmoglobin estimation gives a good indication of the real condition of the blood.

Barbacci (<sup>4</sup>) estimated the hæmoglobin, but not the corpuscles, in twenty-eight cases of chlorosis, and concludes that the percentage of hæmoglobin indicates the real amount of the disease.

Hayem (<sup>2</sup>) states that the determination of the coloring power alone gives the exact measure of the degree of anæmia if the volume of the blood is normal.

Henry (<sup>5</sup>): "The principal point to be determined in an estimation of the blood is the functional value of the red corpuscles, which bears a direct ratio to the amount of hæmoglobin in each."

Jaccoud (<sup>6</sup>): "The fundamental lesion is the diminution in hæmoglobin, not the diminution in the number of red corpuscles."

We may thus feel that in the amount of hæmoglobin we have a good guide for our diagnosis and treatment, a guide which is reliable and which is now so easily accessible that it can be used in general practice. This certainly marks a step of advancement in this subject.

Oppenheimer (<sup>7</sup>) and Gräber (<sup>3</sup>) announce that they consider a normal number of red corpuscles and a diminution in hæmoglobin the characteristic blood condition in chlorosis. This varies so much from the generally accepted reports that it may be considered somewhat in detail.

Duncan (<sup>8</sup>), in 1867, reported the corpuscle number normal and the hæmoglobin diminished in 3 cases of chlorosis, but later observers consider that there may or may not be a reduction in red corpuscles, mild cases often showing no marked reduction. Oppenheimer's cases accorded with this in that they were mostly mild. Many of Gräber's cases must also have been mild, as the hæmoglobin averaged 52 per cent. In any event, positive evidence over-weighs negative, and numerous observers have found a diminution in corpuscles.

Quinke (<sup>9</sup>) states that there must be two kinds of chlorosis—one with a diminution in both hæmoglobin and corpuscles, and one with a diminution in hæmoglobin and a normal number of corpuscles. Henry (<sup>5</sup>): "In severe cases (of chlorosis) the number of corpuscles and the percentage of hæmoglobin are both reduced."

Flint (<sup>10</sup>) states that there may, or may not, be a reduction in the num-



ber of red corpuscles, but that there usually is. Gowers (<sup>17</sup>), Henry (<sup>5</sup>), Baxter and Wilcox (<sup>12</sup>), record 7 cases with an average corpuscle count of 3,250,000. Laache, Hayem, and Coupland are quoted (<sup>5</sup>) (<sup>18</sup>) as recording 38 cases, with an average corpuscle count of 3,450,000. Jaksch (<sup>11</sup>), Hartshorne (<sup>15</sup>), Weiss (<sup>16</sup>), Immerman (<sup>19</sup>), all state that the corpuscles are sometimes diminished. Again, Oppenheimer considers the number of corpuscles normal in those cases who have 4,000,000 per c.mm. This is certainly much lower than most observers put it. Sørensen (<sup>20</sup>) found 4,820,000 (the average) in 14 healthy young women, 15 to 28 years of age. Henry (<sup>5</sup>) compares corpuscles in chlorosis with 5,000,000 as the normal. Gowers (<sup>17</sup>) gives 5,000,000 as an average; Vierordt (<sup>21</sup>), 4,500,000 for women. In the cases which I record there was regularly an increase under treatment, even when there were more than 4,000,000 per c.mm. Therefore, on the basis of the results of other observers, there was really a diminution in red corpuscles in most of Oppenheimer's cases.

We feel confident that a normal number of corpuscles is not characteristic of chlorosis, but that such a discussion could have arisen at this time emphasizes the fact that corpuscle enumeration gives an uncertain guide; it throws us more and more onto the hæmoglobin estimation, and the value of the hæmoglobin estimation is the point which we wish especially to bring forward. The more hæmoglobin estimations are recorded the stronger is the evidence of their value. The more corpuscle enumerations are recorded the stronger is the evidence of their irregularity.

The results of the blood examinations may be summarized as follows:

1. There was usually an initial paucity of red corpuscles.
2. Under treatment it was easy to bring the red corpuscles to 4,500,000 per c.mm., and frequently higher.
3. The severity of the symptoms did not regularly correspond with the paucity of red corpuscles.
4. In the severer grades microcytes, megalocytes, and poikilocytes were found, the average diameter of the corpuscles being below the normal.
5. The reduction in hæmoglobin always exceeded that in red corpuscles and occasionally there was great poverty in hæmoglobin and very little in corpuscles.
6. The amount of hæmoglobin was a far better guide to the severity of the disease than the number of red corpuscles; it is so good a guide in chlorosis as to be sufficient in blood examination for ordinary clinical purposes.
7. The hæmoglobin increased regularly under treatment, but it was difficult to bring it above 85 per cent. of the normal.
8. No change was noticed in the white corpuscles.

These results do not teach us the primary cause of chlorosis; but we do not yet know the cause of many diseases, nephritis or pleurisy with

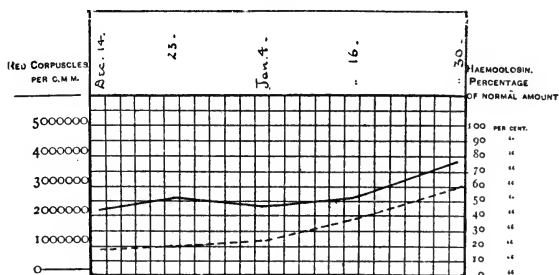
effusion, for instance, although we do know something about the pathological conditions when these diseases are established, and are guided in our treatment by this knowledge. Now regarding the blood as a tissue with cells and a fluid intercellular substance (Virchow (<sup>22</sup>), Prudden (<sup>23</sup>), Foster (<sup>24</sup>)), we are in the same relation to chlorosis that we are to the other diseases; we do not know the cause, but we do know the condition of the blood—at least we can know it as well as we do that of the kidneys and pleura in nephritis and pleurisy, and we should examine the blood in suspected cases as regularly as we examine the chest and urine of patients suspected of having the other diseases.

It is only by continuous observations and records that a groundwork has been gained for further advances in medical science; we now have a knowledge of the state of certain elements in the blood which furnishes a fair guide in diagnosis and treatment, general blood examinations are possible and we have a better groundwork for solving other problems in relation to chlorosis.

The question of treatment in chlorosis is still an open one. The improvement which regularly follows the administration of iron has led to its use almost as a specific, but the Roosevelt Hospital reports show a large proportion of failures to produce a complete and permanent cure.

In these cases the aim was to make a comparative study of the course of the blood-changes; therefore, the treatment was kept as nearly uniform as possible: Five-grain Bland pills, iij t. i. d. Oxygen inhalations, gallons x b. i. d. Still there were some variations from this treatment which affected the blood-changes.

CHART 7.



Case 13.

Case 13 received December 14th to January 4th sodii bicarb. gr. x and hydrarg. chlorid. corrosiv. gr.  $\frac{1}{8}$  t. i. d. and inhalations of oxygen x gallons b. i. d., but no iron, and during this time there was hardly any change in the blood.

Case 14 received hydrarg. chlorid. corrosiv. gr.  $\frac{1}{16}$  and potas. iodid. gr. x t. i. d. from December 14th to January 6th, and inhalations

of oxygen x gallons b. i. d. from December 19th to January 6th. During this time her blood deteriorated.

Case 12 on second admission was given manganese binocide, gr. ij to iv t. i. d., August 15th to 21st, with no improvement in the blood.

All these cases showed rapid improvement when given Blaud's pills and oxygen.

Case 8 on first admission did not do well on ordinary treatment, but improved rapidly on a laxative iron mixture. On returning with a relapse she was kept on laxatives alone for ten days, following the theory of Sir Andrew Clark (<sup>25</sup>) and M. Duclos (<sup>26</sup>), that chlorosis is the result of feculent retention and decomposition in the intestines. During these ten days the improvement was very slight, but it became rapid on the addition of iron and oxygen.

Case 10 (see chart) showed a remarkable improvement on rhubarb, soda, mint, and ipecac :

R.—Rhei pulv.	.	.	.	.	.	.	.	gr. j.
Sodii bicarb.	.	.	.	.	.	.	.	gr. v.
Ipecac pulv.	.	.	.	.	.	.	.	gr. $\frac{1}{2}$ .
Olei menth. piperit.	.	.	.	.	.	.	.	gr. $\frac{1}{20}$ .

Make 1 tablet. Sig.—1 four times daily.

She had been treated two and one-half months on Blaud's pills and oxygen, and during the last month the blood had deteriorated and the chlorotic symptoms had increased. The above prescription was then substituted for the iron and oxygen and there was a steady improvement.

Case 3 had no oxygen and did well.

Case 9 had no oxygen for twenty-nine days and did well.

Case 15 had no oxygen and did not do well.

These observations confirm the value of Blaud's pills, but their value is so well established that there is no need for further proof. The point which is of most importance is that so many of the cases cannot be carried to complete recovery and so many have relapses. Improvement is general, complete recovery is rare. Few of the cases had normal blood when discharged, and at least seven of the thirty-one patients had relapses. Nos. 7, 8, and 12 had relapses which are recorded above. No. 7 has had a second relapse since. Nos. 6 and 23 have each had two similar previous attacks within four years, each lasting many weeks.

Case 10 has been treated four times for chlorosis in Roosevelt Hospital : August, 1885, to October, 1885 ; December, 1885, to January, 1886 ; November, 1886, to December, 1886 ; January, 1888, to April, 1888.

Case 24 had a decided attack eight years previously, and in the meantime had continually suffered from chlorotic symptoms.

Some of these cases were taking iron much of the time between relapses. Numerous similar cases are recorded: (<sup>27</sup>), (<sup>28</sup>), (<sup>29</sup>).

It is in these cases that the disease assumes its most serious aspect. If a young girl has an attack of chlorosis which lasts two or three months and ends in complete recovery, it is not a serious matter. She may have to stop school for a time and her friends may become anxious, but such an attack has no permanent bad effect. On the other hand, when the symptoms continue for years the results are very serious. The patient becomes a semi-invalid, all employment which requires ordinary health or strength has to be given up, attacks of gastric disturbance or headache, or pain, or palpitation, or vertigo, follow each other, and then hysterical symptoms arise which complete the ruin of a useful member of society.

I was consulted recently by a patient whose relatives were suspicious of a cancer of the tongue. The tongue was simply irritated by decaying teeth. She said she was unable to sit in a dentist's chair long enough to have the teeth filled, and the idea of having them extracted was quite unbearable. She always carried a bottle of valerian with her, and could not so much as make a call without using it. She was pale and weak and subject to attacks of palpitation and dyspnoea and indigestion. At the age of twenty-five she was a wreck, nervously and physically. Her history was as follows: Eight years ago she had a perfectly straightforward attack of chlorosis. She had recovered from the acute symptoms, but had gone on with the subacute ones until she reached the stage depicted. She had taken iron in various forms, but had always been weak, pale, and miserable, and had grown more and more nervous and hysterical. When seen she had 70 per cent. the normal amount of hæmoglobin. If the original chlorosis could have been treated successfully, and if the tendencies to relapse could have been controlled, she need not have fallen into her present condition, but it is in just these cases that our treatment is defective. We certainly are in great need of further studies as to the best method of treating these long-continuing cases. There is no lack of remedies which are recommended. Arsenic (<sup>32, 6</sup>), albuminate of iron (<sup>39</sup>), hydrochloric acid after iron (<sup>40</sup>), alkalis and mild tonics (<sup>32</sup>), aloes (<sup>32</sup>), laxatives (<sup>25, 26</sup>), sulphur (<sup>41</sup>), phosphorus (<sup>18</sup>), large doses of iron as opposed to small ones (<sup>42</sup>), and oxygen inhalations are among them. We have tried many of them without reaching the desired result. There is no doubt that a skilful selection from these remedies together with good hygienic surroundings would save many cases, but the fact still remains that many are not treated successfully. It would be interesting to know whether there is any direct relationship between these prolonged attacks and pernicious anemia.

There are certain considerations in the etiology and symptoms of the

disease which bear on the diagnosis. The age of the patient, the color of the face, pain, severe cardiac or digestive symptoms may any of them obscure the diagnosis. The facts which seemed of especial importance may be grouped as follows :

*Occupation.*—All did housework, or were shop or factory girls.

*Age.*—

16 years,	2 patients.	22 years,	5 patients.
17 " "	5 " "	23 " "	3 " "
18 " "	2 " "	24 " "	1 patient.
19 " "	4 " "	25 " "	1 " "
20 " "	4 " "	26 " "	1 " "
21 " "	3 " "		

Fourteen—nearly one-half—were 21 or older. This is significant, as chlorosis is sometimes called a disease of puberty (<sup>5</sup>). However, Gowers (<sup>17</sup>), Gibson (<sup>30</sup>), and Jaccoud (<sup>6</sup>) record cases aged respectively 34, 30, and 25 years; Sørensen records cases from 17 to 34 years. Many of the older patients had some of the secondary symptoms prominent.

*Nativity.*—Irish, 24; French, 1; Welsh, 1; Swedish, 1; American, of foreign parentage, 4. Eleven had been in this country two years or less.

The only etiological factors which seem of importance in these statistics are that the average age was high and that many of the patients had not long been in America.

*Family Histories.*—Negative, excepting that in five cases a parent had died of phthisis.

*Personal Histories.*—No previous history of venereal, cardiac, renal, or serious pulmonary disease; no recent malarial symptoms; two cases had had slight attacks of rheumatism.

*Nutrition.*—All well nourished.

*Color.*—All pale when admitted; fifteen had a chalky white hue; under treatment a flush soon came to the face which was very deceptive; a chlorotic girl with one-half the normal amount of hæmoglobin might look ruddy while a phthisical patient with the same amount would look very pale. As the color is apt to be the first guide in diagnosis this peculiarity is important. Oppenheimer (<sup>7</sup>) has especially called attention to the fact that a pale color is no fair indication of the state of the blood, pale patients often having normal blood, but the converse is also true. Many patients with a flush on the face, or even a good color, have blood much impoverished; hence the importance of blood examinations in all doubtful cases is very evident.

*Dyspnœa and palpitation of the heart* on exertion were present in all cases.

*Weakness* was a very prominent symptom; nine of the patients could not walk a city block without much distress.

*Attacks of vertigo* were present in twenty-five cases.

*Attacks of syncope* were present in eight cases.

One case, 21, was brought into the hospital in an unconscious condition and remained so for two days; urine and feces were passed involuntarily; she had been incoherent for several days before admission; she had had no previous similar attacks and showed no tendency to a recurrence; there were no convulsions; she did well under iron and oxygen.

Another case, 24, was brought in suffering apparently from dementia; she had very marked symptoms of chlorosis; her mental condition improved rapidly when Blaud's pills and oxygen were administered.

In dispensary practice I have seen an anæmic patient show unmistakable signs of dementia, which disappeared when iron was administered.

*Menstruation* ceased in eleven cases, it was diminished in ten, irregular in three, irregular and diminished in three, and normal in four cases; a return under treatment was recorded in seven cases.

*Ophthalmoscopic examinations* were made in twenty-six cases and no retinal hemorrhages were seen.

*Pain* was a very common symptom, in four cases it was the symptom most complained of; headache was frequent in twenty-four cases; oppression in chest, cramps in legs and abdomen, epigastric, lumbar, iliac, and general shooting pains were continually recorded. In every case the pain disappeared when the anæmia was relieved, while treatment immediately against it was futile.

*The digestive functions* were very generally disturbed; twenty-six patients had poor appetites, fourteen of them had cravings for peculiar articles of diet, such as pickles, lemons, ice, chalk, etc.

Vomiting was common, very severe in eight cases—so severe as to be the main complaint. One of them had vomited blood and another "dark fluid." Here, again, we have a misleading symptom; the patients certainly had the symptoms of gastritis or of gastric ulcer; some of them had been treated for the gastritis, but without good result. However, in every case the gastric symptoms disappeared as the blood improved under the routine treatment.

When we hear of chlorotic patients being rigidly dieted, or having their stomachs washed out for their gastric disturbances or being blistered or cauterized for their pains, we feel that there is really much need for giving attention to these secondary symptoms and to the fact that they disappear when the anæmia is relieved.

The relation between constipation and chlorosis has recently been much considered, Sir Andrew Clark<sup>(45)</sup> claiming that "feculent retention is not only the rule but the characteristic sign" in chlorosis, and that the leucomaines and ptomaines produced in the intestine and absorbed are the real cause of the disorder; he quotes Bouchard as esti-

mating that enough alkaloids are formed in the intestine in twenty-four hours to kill a man if absorbed.

M. Duclos (<sup>26</sup>) considers chlorosis eminently a result of auto-infection from decomposition of fecal matter in the intestine. However this may be, constipation was certainly the rule in these cases; twenty-two were constipated and the improvement was much retarded when the constipation was not relieved. In the one case (8) where laxatives were given for a time without iron there was little improvement. In another case (10, referred to above) laxatives and stomachics succeeded when iron had failed.

*Physical Examination.*—An anæmic heart murmur was present in all the cases but one (6); it was systolic, heard at the base, usually most distinct at the second left intercostal space. It was also heard at the apex in fourteen cases; transmitted to the left from the apex in eight cases. The apex murmur disappeared after treatment in all cases. The base murmur disappeared in all but seven; in these seven it was faint. They all left the hospital before complete recovery.

Cardiac dilatation in chlorosis has been often recorded. Stark (<sup>31</sup>), Duclos (<sup>26 a</sup>), Duckworth (<sup>32</sup>), Irvine (<sup>33</sup>), Forchheimer (<sup>34</sup>), and Jacoby (<sup>29</sup>), all report it.

I only attempted to record the position of the apex beat. In twenty-six cases it was in the fourth instead of the fifth space, the average distance from the median line being three inches. It was reported at various stages of the disease in twenty-two cases; in fifteen it was constant, in four it was slightly nearer the sternum on discharge than on admission, in three slightly nearer on admission than on discharge.

In eleven cases a continuous venous hum (bruit de diable) was heard in the vessels of the neck. It disappeared in all but two.

Physical examination of the lungs was negative in all cases.

The area of hepatic dulness was recorded in twenty-six cases; it was normal.

The area of splenic dulness was recorded in fourteen cases; it was slightly increased in one.

The temperature was frequently a little above the normal. The average oral temperature for all the cases on admission was 99.3° F. There was generally an afternoon rise of a fraction of a degree. There was a marked tendency to exacerbation under each slight provocation.

*Urine.*—Eight cases showed a trace of albumin, which disappeared; in other respects the urine was normal. The specific gravity averaged 1017. Jaccoud (<sup>6</sup>) records a case of temporary albuminuria; Molliere (<sup>43</sup>): thirty cases in whom the urea and urine were normal.

*Edema* of the feet and legs was present in fourteen cases; of the face and eyelids in one case. It was temporary in every case.

*Thrombosis* of the internal saphenous vein was present in one case; recovery was apparently complete. I find cases of thrombosis in chlorosis reported by Rendu (<sup>35</sup>), Hanot and Mathieu (<sup>36</sup>), Jandot (<sup>37</sup>), and Tuckwell (<sup>38</sup>).

*Epistaxis* occurred in eight cases.

To review these clinical studies, we notice many points which bear on the diagnosis. Patients are often found over twenty years of age, and occasionally over twenty-five, who are manifestly suffering from chlorosis and who do not differ from the younger ones, excepting that the disease has usually been of longer standing, that it yields less readily to treatment, and that the secondary symptoms are especially prominent. The color of the face may be deceptive.

There are often secondary symptoms which obscure the diagnosis. Pain, vomiting, vertigo, even unconsciousness for several hours, mental disturbance, amenorrhœa, palpitation, œdema, temporary albuminuria, thrombosis, are all capable of doing so.

Among these cases the pain has led to the diagnosis of rheumatism and "neuralgia;" the vomiting and other gastric disturbance, to that of gastritis or possible gastric ulcers; the mental disturbance, to that of dementia; the palpitation and cardiac murmurs, to that of endocarditis; the œdema and albuminuria, to nephritis. Yet these symptoms all disappeared under treatment for chlorosis and they all are common in chlorosis.

The diagnosis of a straightforward case of chlorosis is simple. It is often difficult when there are marked secondary symptoms, and the effects of a wrong diagnosis are serious. If a patient who simply needs Blaud's pills is told she has Bright's disease and treated for the same, she and her friends are made miserable, and instead of being benefited she is injured. If she is burned, or blistered, or dieted, or has her stomach washed out, she suffers at the hands of her physician as truly as does a patient at the hands of a surgeon when she endures an unnecessary operation.

Furthermore, judging from observations not recorded here, we believe that there are hundreds of cases where a moderate amount of chlorosis is an accompaniment of another condition and where the successful treatment of the other condition is much easier when iron is administered for the chlorosis.

As regards the course and treatment of the disease, it must be noted that relapses are frequent and that it is difficult to bring about a complete cure, many cases running on for months or years, suffering more or less from the symptoms of chlorosis.

Whether these cases are allied to pernicious anæmia or not we do not know, but we do know that we have here a disease which is chronic in



its course, severe in its symptoms, and difficult of treatment, and that we need more studies both about its pathology and its treatment.

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## POINTS IN THE TREATMENT OF CEREBRAL MENINGITIS.

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In writing on the treatment of cerebral meningitis it is necessary to recognize the various forms.

Roughly speaking, the cases of cerebral meningitis may be divided into tuberculous and non-tuberculous; while the non-tuberculous, again, include many forms. These are for the most part :

1. Epidemic cerebro-spinal meningitis.
2. Syphilitic.
3. Traumatic.
4. A form due to a peculiar variety of sunstroke.
5. That brought on by overwork of brain.
6. A purely idiopathic form, that may or may not be associated with a rheumatic, and, more rarely, a gouty diathesis.
7. The meningitis that sometimes accompanies a lethal form of delirium tremens.
8. That which is the sequence of purulent disease of the middle ear, or of the nasal bones.
9. A form associated with diseased kidneys.
10. One seen in connection with diseased cerebral arteries, and probably dependent, like sclerosis, on imperfect circulation.
11. Meningitis the direct result of the progress of intra-cerebral or intra-cranial tumors, or cerebral abscess.
12. A form possibly due to metastasis, as in erysipelas; but as cerebral meningitis is sometimes found in various forms of blood-poisoning, it is quite likely that in erysipelas it is due rather to the presence of micrococci than to metastasis; the more especially as cerebral meningitis is sometimes a sequence of typhoid, scarlatina, etc.

The tuberculous cases call for little remark. Any treatment that can be attempted must be early. Where strabismus occurs the time for treatment is, as a general rule, passed; although, under counter-irritation there may be temporary recovery of consciousness after coma of three days' standing. Watching the earliest symptoms is of as much importance in tuberculous as in non-tuberculous cases; especially as overwork of brain seems to be so frequently the exciting cause in both. On the least deviation from nerve health the brain should be rested, and cod-liver oil, iodoform, or per-iodic acid should be given. It is not always easy to determine the presence of tubercle in the early stages of meningitis. Either the lungs, or the bronchial glands, the glands of the intestine, or the peritoneum, are usually affected; but if the growth of

miliary tubercle is tolerably symmetrical in both lungs, its detection is not easy. Many practitioners have seen cases supposed to be of tuberculous meningitis recover, and the not rare instances of chronic meningitis, with distended ventricles, with the views of some neurologists that certain cases of insanity have been caused by a meningitis partially recovered from, show that when the amount of tubercle is small, and there are no physical signs of general tuberculosis, partial recovery from the original disease is not impossible.

It is very doubtful whether in tuberculous meningitis counter-irritation is of any use. In other forms the position of the inflamed region may render this kind of remedy more potent. But, in tuberculous meningitis the force of the morbid process falls mainly on the membranes at the base of the brain and on the ependyma of the ventricles. It is secondary to the presence and increase of tuberculous bacilli in the tunica adventitia of the smaller arteries and arterioles, though the systemic condition that determines the possibility of this increase goes much further back. This increase of bacilli seems wholly untouched by counter-irritation, and the inflammatory products are scarcely affected by this treatment. Neither venesection, nor leeches, nor cold affusion, nor iodide of potassium, bear the test of experience. But inunction with iodoform ointment is sometimes useful. One point, however, may be noted. The growth of the tuberculous, as of many other bacilli, seems to have the early effect of inducing pyrexia, possibly by paralyzing the inhibitory heat centres, by the absorption of the poisonous chemical products of their growth. The pyrexia, however induced, is favorable to the increase of these organisms. Reduction of temperature under such conditions—not an easy process—is remedial; and various antipyretics, antipyrine by preference, may be used. This drug is best given with digitalis, in the hope of counteracting the depressing effect on the cardiac nerves, caused by the spread of inflammation round the medulla oblongata, or within the fourth ventricle.

It should be remembered, also, that meningitis occurs in tuberculous subjects in which microscopic investigation fails to detect tubercle about the cerebral vessels. Differing from tuberculous meningitis in degree rather than in nature, this form of inflammation is doubtless due to the same organisms, but in number so small that they cannot be readily detected. Sometimes, it is true, death ensues, as several autopsies in the practice of the writer have shown; but the prospects of a treatment, antipyretic, anti-tuberculous, and supporting, are greater, because the arterioles are in this stage not ruined.

It is in the experience of all practitioners that the pain in the occiput and neck, and the retraction of the head, may be met with in forms of cerebro-spinal meningitis, associated with tubercle, or with syphilis, and where there is no epidemic condition present.

The epidemic form is rare in this part—the southwest of England—but in 1875 Dr. Cole, of Bath, brought before the local profession an excellent account of a batch of cases that had occurred in his practice in that city, at a time when a small number of such cases had also been observed in Bristol. At the same time similar cases were met with in neighboring villages, and after death the chief anatomical lesion was lymph on the cerebro-spinal membranes.

Two of such cases were as follows. They occurred in a village in which ten other children were affected, in some of which *post-mortem* appearances were noted:

CASE I.—Girl, aged nineteen. Slight vomiting for a fortnight. She seemed to get well, but was found on the floor, slightly convulsed in the face, and insensible. Never regained consciousness. Eyes sometimes open, sometimes shut. Pupils regular, and not inactive. No strabismus. Right arm contracted, but it could be straightened. Restless movements of left arm. Next day no paralysis or contraction of either arm. Complete paraplegia. Urine passed unconsciously, very albuminous. Bowels very inactive. Respiration 30, sighing. No facial paralysis. Swallows well. Some retraction of head. No herpes. Coma increased. Temperature before death,  $106^{\circ}$ .

CASE II.—Girl, aged three. No family history of tubercle. Ailing ten days. Convulsions three days ago. Headache. Some retraction of head. Semi-coma. Convergent strabismus of right eye. Choked disks and distended veins of both retinae. No contraction or paralysis of limbs. A little vomiting at times. Pulse regular. Temperature never above  $102^{\circ}$ . Died fourteen days after the first symptoms, with much convulsions and coma; the strabismus having disappeared.

In this form of meningitis the micrococcus does not seem to produce such poisonous chemical products as the tuberculous bacillus. Treatment, therefore, is more hopeful, and may be directed to the parts found in fatal cases to be specially attacked. Spinal ice-bags, mercury, iodide of potassium, with some counter-irritation, not of the most exhausting form, may be used. The frequent occurrence of glycosuria, perhaps also of albuminuria, points to irritation of the regions of the medulla oblongata. These spots are so close to the vagus nucleus that it is impossible in practice to neglect the origin of this nerve, whatever treatment is employed for combating the localized meningeal inflammation; the cardiac tone, and the general strength must be supported by digitalis and quinine. The occipital headache is often so severe that sedatives are called for, and morphine and other salts of opium are well borne. May they not exercise a tonic influence on the centres in the medulla oblongata, as they seem to do in many cases of diabetes?

The meningeal thickening sometimes seen in cases of delirium tremens, and due to the toxic effects of alcohol—the form that may be associated with chronic nephritis—the variety that seems to depend on imperfect circulation through atheromatous and rigid arteries, calls for little

remark as to treatment. The original diseases demand, as far as may be, more attention than the meningeal lesion.

Inflammation of the middle ear is sometimes a cause of meningitis; but meningitis is often secondary rather to the cerebral abscess consequent on the ear disease. If meningitis be the only result of the middle ear lesion, without pyæmic deposits of any kind in the brain itself, the case is not hopeless, especially if the mastoid cells are unaffected. If the drum of the ear has not been ruptured naturally in the course of the disease it may be punctured, and then injections of a disinfectant nature are useful. Borax, boric acid, periodate solution of the strength of one part in 500 in water, or a very dilute carbolic acid solution, may be injected. Counter-irritation over the mastoid cells may be successful. In a case lately under observation leeches over the mastoid cells, with large doses of iodide of potassium, were followed by recovery, where the symptoms were agonizing pain, restless delirium, and coma. Surgical interference is not hopeful in this form, however much may be said for trephining over mastoid cells in cases of pyæmia from middle-ear suppuration.

In those rare cases of sunstroke where the vertex of the head is affected, and where, instead of the intense pyrexia, the loss of consciousness and the collapse of the ordinary form, the patients suffer from a very temporary loss of consciousness, a dazed condition of mind, and an ataxic gait resembling that of drunkards, besides the cold affusion, and the hypodermic injection of quinine, so useful in ordinary sunstroke, a modified counter-irritation over the vertex of the head, and a course of iodide of potassium with ammonia and digitalis, will be found useful.

In the violent delirium of some cases of erysipelas, due at least partially to meningeal inflammation, the best results are obtained by profusely painting the whole scalp with linimentum iodi. Whether this acts simply as a counter-irritant, or also, and mainly, from its antiseptic powers, is open to question. The last seems most probable. Such cases will respond to the remedy, even when the temperature has reached 108° Fahr.

There remain, then, syphilitic meningitis, traumatic, and the so-called idiopathic form, due to rheumatism, over-work, or other causes.

When the cerebro-spinal meningitis is not epidemic nor endemic in a district, and where there is good reason to disbelieve in the presence of tubercle, retraction of the head may probably be due to meningitis of a syphilitic nature. It is a form, also, very frequently marked by affection of the nerves of the eyelid, the eyeball, and the face. Though we meet with this form affecting small regions of the convex surface, and generally then associated with severe pain, even where the cranial bones are healthy, the force of the lesion is usually seen at the base of the brain. Counter-irritation is of little use. A course of biniodide of mer-

cury may remedy most of the phenomena, if the case comes early under treatment. But in this, as in all forms of meningitis, early treatment is of the utmost importance before the effused products indurate and contract and compress nerves more effectually. In one case, with ptosis of left upper eyelid that had existed for many years, convergent strabismus of both eyes manifested itself, with complete paralysis of the left side of the face, and with some implication of the fifth nerve also. A course of biniodide of mercury was followed by large doses of iodide of potassium; but no improvement took place until iodide of sodium was substituted for the potassium salt, when the affection of the eyeballs, the facial paralysis, and the partial anæsthesia passed away, leaving the chronic ptosis untouched. It may be presumed that the sodium iodide is more destructive to the microbe of syphilis than the potassium iodide. Hand in hand with these remedies careful nutritious feeding is of great importance in syphilitic meningitis. In all forms of this disease, where death does not occur from hyperpyrexia, or from direct pressure on or irritation of the medulla oblongata, there is great danger from imperfect nutrition of the brain itself. Thrombosis of the pia mater vessels is common in all forms of meningitis; and so large a portion of the brain, especially of the cortex, derives its nutrition from these vessels, whilst the anastomoses between them and other arteries occur so sparsely, that local softenings are not usually met with. Nutritious diet, that may improve the quality of the blood without necessarily intensifying the action of the heart, and so increasing the risk of small hemorrhages, is an integral part of treatment.

Traumatic meningitis may seem to be more suited to surgical than to medical treatment. Cranial surgery is achieving splendid triumphs in cases of compression from bone, of abscess, and even of intracranial tumor. But a considerable number of cases occur where a fall or a blow causes no fracture, no displacement of bone, but yet is sufficient to bring about meningeal inflammation, sometimes following a small hemorrhage that may act as a foreign body. The meningitis is at first localized, and may give rise to very slight symptoms, but it spreads, and by-and-by slight strabismus will be noticed, or amblyopia or photophobia, or a difficulty in remembering words, or irritability, or some change in the character of the patient, difficulty of attention, etc. Bearing in mind what has been said above as to careful nutrition, there is need in these cases of somewhat drastic treatment. Thorough counter-irritation over the seat of lesion, mercurial aperients, the iodides combined with the bromides, an absolutely vegetative life in a partially darkened room, without any kind of excitement, will give good success. Nor are sedatives to be tabooed in such cases. Not only bromide of potassium, but hyoscyamus, sulphonal, and preëminently paraldehyde, are of use, though the action of sedative drugs is incomparably of

less importance than the sedative effects of a quiet life. It has been said that in traumatic meningitis, if slight, electrical treatment is useful.

The following cases exemplify the great variety of symptoms in this form of meningitis :

CASE III.—Lieutenant N. Fall at polo. Concussion of brain, and probably fracture of external table of frontal bone. Unconsciousness ten days. Memory poor for many months. Intelligence sluggish. Difficulty in concentrating attention. Depression. Tendency to be emotional. In this case probably localized meningitis followed the pouring out of a small hemorrhage.

CASE IV.—Girl, aged six. Seven weeks ago was knocked under a table by another little child. No symptoms for two weeks. Then general malaise. No importance attached to it until a few days ago. Now no photophobia. Headache. Child places hand on the seat of injury above the right ear and forward to the temple. (A year ago had discharge from right ear, of which she got well.) Right pupil slightly the larger. Strabismus, followed by convulsions. Vomiting. Temperature  $101^{\circ}$ . Semi-coma. Death. No tuberculous family history.

CASE V.—Mr. G., aged thirty-five. Had a bad fall from his horse three months ago. He fell on posterior part of right parietal bone. Bone supposed at the time not to be injured. Unconsciousness two days. Now tenderness at seat of injury, general headache. Irritability. Vertigo. Impaired memory. Confusion on attending to business. Stiffness of upper neck. Insomnia. At a distance of four yards cannot distinguish letters of XL. Jäger's type with left eye, and only just with right. Commencing double optic neuritis. Slight motor deficiency in right arm and hand. Some motor loss and numbness of left leg. Irritable bladder. Great improvement under large doses of iodide of potassium, and the application of linimentum crotonis over the seat of accident.

CASE VI.—H. F., aged fifteen. Has had his ears boxed at school a good deal. Has been failing for some months. Spasm of right facial muscles. Slight paresis of right limb. He will romp sometimes, but is generally inert and heavy. A little later, spasm of orbicularis oris showed itself. Headache. Sight of left eye poor. Some optic neuritis of left eye. Improved under iodide and bromide of potassium, and the application of croton oil over left parietal region.

CASE VII.—T. S., aged fifty. A very subacute case. Three months ago he fell six feet on vertex of the head. Headache ever since, the pain being much increased on taking alcohol in any form. Mist before the eyes. Cured by iodide and bromide of potassium.

CASE VIII.—F. W., twenty-one. Fell on her head fourteen months ago. Constant headache since. No other symptoms. Cured by iodide of potassium, bromide of ammonium, and guarana.

CASE IX.—Miss M., thirty-seven. Fell down stairs a month ago, striking the temples against the wall and the stairs. Headache at first. Sent to bed four days afterward. No rigor. No symptoms, except headache and slight photophobia. Ten days ago temperature went up to  $101^{\circ}$ , and she began to talk nonsense. Yesterday the evening temperature was  $102^{\circ}$ . To day more photophobia; is not very sensitive to sounds. Is rather sleepy, but can easily be aroused. Wakes with a little half-hysterical sob. Pupils act, and are equal. Optic disks healthy. No

convulsions. No paralysis. Passes excretions with full consciousness. Looks very neurotic. Reflexes normal. Kidneys, heart, and lungs healthy. Swallows well. Talks, but without sequence. The scalp was shaved and blistered. Unguentum iodoformi over the blistered surface. Hazeline, bark, bromide of sodium given. Gradually coma supervened, and she died in about three weeks from the going up of the temperature. *Post-mortem*: Dense, heavy calvarium, with scarcely any cancellated tissue between the tables. The soft membranes opaque and thickened over convexity. Lymph poured out along the edges of the great longitudinal sulcus. Intense venous engorgement of the whole brain. No pus. No tubercle.

The difficulty here immediately after the fall was enhanced by her being very neurotic, by the fact that she was the child of a very intemperate father, and by her having lately had a disappointment in love.

CASE X.—Miss E. H. Six months ago had a very severe fall on the back of her head, from the effects of which she says she “fainted.” To get rid of the headache which supervened she starved herself, took long walks, and played lawn tennis vigorously for three months. Then had atonic obstruction of bowels, and absence of catamenia. Now is physically stronger, but power of thought, attention and memory are almost in abeyance. Fears insanity. Under slight counter-irritation the use of phosphorus and nux vomica, and careful feeding, she gradually recovered.

CASE XI.—Miss L., seventeen. Six months ago had severe blow over the right parietal bone. Was stunned for a few minutes, but afterward felt little effects until six weeks ago. Then paroxysmal pain over the injured region, and this has persisted, off and on, ever since. Now there is no depression or tenderness over the injured part, but some tenderness below to the ear, and internal pain there, running also down the neck. On walking she feels giddy, and sways. No vertigo in bed. Some photophobia. Cannot long attend to reading. Sight of right eye not so good as of left. A little deafness of right ear. Some irregularities of heart, one beat out of five being weak. Temperature normal. Respiration good. She digests fairly, but needs aperient; at times some weakness of external rectus of the right eye. The opinion given was that at the time of the blow a small hemorrhage occurred—that the presence of the small clot set up subacute meningitis, which has passed down the right side of the brain to the base, affecting the auditory nerve as it enters the petrous bone, the third nerve and the right optic nerve.

Under vigorous use of croton oil over the seat of injury and the chief seat of pain, with the exhibition of iodide of potassium, digitalis, and ammonia, careful feeding, partial darkness, and complete absence of all excitement, recovery was complete.

In so-called idiopathic meningitis treatment must depend upon the recognition of the probable cause. Rheumatism certainly is one, gout more rarely. The most frequent cause is overwork. In one case observed, with a temperature of  $107^{\circ}$ , in a woman aged thirty, no other lesions than acute meningitis of the convexity were found after death, the cause of the illness being rheumatism. In another case, in which the patient, a lad of eighteen, died from rupture of a meningeal artery, there



were found the remains of a meningitis from which he had suffered a year before as a sequence of rheumatism and had recovered. But overwork of brain, demanding an abnormal supply of blood within the cranium, is prolific in mischief. Case after case in a physician's notebook shows the truth of this, and the prodromata are so easily mistaken or overlooked.

For instance, G. D., aged five, is old and precocious, even learned for her young age. Eight months ago used to have screaming fits, and was very irritable. This was treated at home by punishment. The irritability has returned this winter, with tendency to trip in walking or running, with numbness of tongue and of the limbs of the left side, with at least one attack of petit mal, and now with constant headache, and a temperature of  $102^{\circ}$ . No convulsion, no vomiting, no strabismus. Under sharp treatment with iodide of potassium and aconite, with an entire change of habits, further evil was warded off. In another case, that proved fatal, a girl, aged sixteen, had been working hard for a prize. For some weeks she had been frequently losing the memory of words for a time. Even a symptom like this had been neglected. She died after an acute illness of a fortnight, retraction of the head being an early symptom, followed by headache and gradual coma.

Such cases are numerous enough, and exemplify the importance of watching any deviation from the normal in the nervous system. The convexity, too, in these cases is usually the part chiefly attacked. Bleeding is pretty universally condemned; indeed, experience decided against its being of any benefit in meningitis before it was given up for a vast number of morbid states. But leeches over the scalp certainly give ease to the patient, and probably render the cerebral circulation less difficult. Ice to the head and cold affusion have often been recommended. No doubt the application of cold to the scalp is grateful to the patient, and on that ground is beneficial, but it is nearly certain that it does not reduce the temperature at all. It acts wholly on the fibrils of the fifth nerve outside the skull (therefore reflexly on the branches inside the skull). On the other hand, considerable advantage is derived from the free use of croton oil to parts of the convex surface of the cranium, or by painting the whole scalp with linimentum iodi, or even by blisters on the scalp, behind the ears, or on the nape of the neck, although these latter applications often seem too mild. Long mustard poultices down the whole length of the spine often give relief to the headache of meningitis. Partly as a counter-irritant, partly as a means of preventing or removing effusion into the ventricles, purgatives are useful.

In this, as in other forms of meningitis, it is necessary to reduce pyrexia: even if the temperature of the body is not hyperpyretic, antipyrine, antifebrin, aconite, even quinine, combined with hydrobromic acid, may do

this, and in most cases these remedies should be combined with cardiac tonics. Jaborandi, or the hypodermic use of pilocarpine, may be useful, maintaining the circulation at the same time. The iodides are in this form chiefly beneficial at a later stage, with the view of getting rid of effused products. A nutritious diet of milky and farinaceous food is all-important, without stimulants in the great majority of cases, and especially in young subjects. If life is preserved the after-treatment, though not stimulating, should be supporting, and the whole surroundings of the patient should be calculated to prevent brain-waste and to promote repair.

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### EAR PRESENTATION.

BY H. J. GARRIGUES, M.D.,

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THERE is yet, after nearly three-quarters of a century, much diversity of opinion among obstetricians in regard to Naegele's obliquity. Some, such as Leishman and Duncan, deny its existence altogether; others, *e. g.*, Barnes, think it governs the whole passage of the head through the genital canal. However this may be in normal cases, so much is sure, that in abnormal cases we may have the head bent so much toward one of the shoulders above the brim of the pelvis that the ear presents. The head may either be approached to the anterior or the posterior shoulder. In the first case the sagittal suture is found running transversely from side to side, near, close up to or above the anterior pelvic wall; the posterior parietal bone and the posterior ear present themselves at the brim of the pelvis. In the second the sagittal suture runs in a similar direction near the promontory of the sacrum, and the anterior parietal bone and ear present themselves.

These presentations are called the *anterior and posterior parietal presentation*, according to the parietal bone that presents itself to the touch; or, since the ear is easily felt, the *anterior and posterior ear presentations*. They are, probably, of rare occurrence. I have never met with a case before the one I am going to report. They are not mentioned in our three modern American treatises on obstetrics, Lusk's, Parvin's, and Gliesan's, nor in such widely used English works as those of Playfair and Leishman. Spiegelberg<sup>1</sup> says they are very rarely found in normal pelves. As a rule the pelvis is narrow, but even with a normal pelvis an anterior ear presentation may be caused by anteversion of the

<sup>1</sup> Lehrbuch der Geburtshülfe, Lehr, 1878, pp. 158-159.

uterus and pendulous abdomen. Under other circumstances the causes that produce ear presentations are unknown.

In most cases the prognosis is favorable, as the head either changes its relations to the body under the influence of labor pains, or is manually replaced by the accoucheur. But if the abnormal attitude continues after the waters have broken the condition is a serious one, as the head cannot pass through the pelvis when so placed. If feasible, podalic version and extraction are indicated; if not, the head must be diminished by means of perforation and evacuation.

The case I met with was the following:

Mrs. B., æt. thirty-one, American, third pregnancy. She stated that her previous labors had been very tedious, but finished by nature's sole efforts. Last menstruation February 1st till 6th, 1889. Labor pains began November 22d, about 11 P. M. First seen on the following day, at 3 A. M. The os admitted the index and formed a transverse oval. Ordered: Antipyrine, gr. x.

At 7.30 A. M. hardly any change was observable, although the cervix was soft. Repeat antipyrine, gr. x.

At 10.30, things being pretty much in the same condition, I made a thorough examination, the patient being on her back, and felt first the left posterior side fontanelle, and to the right side of that (that is to say, going over toward the mother's right side) I felt the left ear. Heart-beat 140 per minute, two inches to the right and below the umbilicus. I turned the patient over into Sims's position, and could then reach the left eye. Neither the sagittal suture nor any of the adjoining fontanelles was within reach. But by pushing the body of the child over to the mother's left side, and by pressing on the head the posterior fontanelle was brought down. After that I kept her lying on the left side in order to retain the presentation obtained.

At 11.30 A. M. the os had the size of a fifty-cent piece. The cervix was soft, the bag unbroken, the presentation vertex in left occipito-anterior position (V. L. O. A.). Neither the large fontanelle nor the eye nor the ear were within reach. Labor pains weak. The patient slept a good deal.

At 4.15 P. M. the waters broke spontaneously, and almost immediately after the child was expelled in good condition. It was a medium-sized boy, weighing I should say between seven and eight pounds. About ten minutes later the placenta was expressed by Credé's method.

The lying-in period was normal. On the 30th, the uterus being way down in the pelvis, she was allowed to sit up.

Anybody who has a foetal head and pelvis at his disposition can easily reproduce the presentation by placing the head above the brim, the posterior fontanelle touching the left ilio-pectineal eminence; the sagittal and frontal sutures parallel to and nearly on a level with the ilio-pectineal line of the pubic bones; the left parietal and the left frontal bones turned down toward the cavity of the pelvis. He will then likewise realize how it helped to push the body from the right side, where the heart was heard, over into the left, and let her lie on the left side, so as

to get the weight of the uterus with the child on this side, and at the same time push the posterior side fontanelle with the ear over to the mother's right, and backward. By so doing the upper posterior fontanelle is brought downward. By a rotation round the occipito-frontal diameter the position changed to a normal left occipito-anterior.

I would on this occasion call attention to the posterior side fontanelle, which is unduly neglected in the text-books. This fontanelle is by no means rarely felt, and gives exactly the same sensation to the examining finger as the upper posterior fontanelle, three sutures meeting to form either. At the superior posterior fontanelle we have the sagittal and the two branches of the lambdoid; at the posterior side fontanelle it is the lambdoid joining the masto-parietal and the masto-occipital. But they may be distinguished by the adjoining bone. Following the sagittal suture we meet the entirely smooth, evenly convex upper end of the occipital bone, while when we follow the lambdoid we meet the mastoid portion of the temporal bone, which presents rugosities formed by bony ridges and protuberances.

It is particularly desirable that the accoucheur should know the existence of ear presentations on account of the possibility of the examining finger coming in contact with an eye, as in my case—a circumstance that may give rise to irreparable injury if that delicate organ is not treated with due care.

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## TUMOR OF THE CORPUS CALLOSUM.

BY HENRY J. BERKLEY, M.D.,

OF BALTIMORE.

TUMORS of the great inter-hemispheric commissure are so rare as scarcely to find a place in the standard literature of cerebral disease, Gowers<sup>1</sup> and Seeligmüller<sup>2</sup> being the only recent writers who have touched upon the subject, and then only passingly. There are, however, scattered through different journals twelve cases, recorded by Mills<sup>3</sup> (1), Glaeser<sup>4</sup> (3), Macguire<sup>5</sup> (1), Bristowe<sup>6</sup> (4), and Bruns<sup>7</sup> (3); in which this part of the brain was involved. The third case of Bruns is so complicated by other tumors, as hardly to be included among the callosal ones;

<sup>1</sup> Gowers: *Diseases of the Nervous System*, vol. ii., 1888.

<sup>2</sup> Seeligmüller: *Gehirn u. Rückenmarks Krankh.*, 1887.

<sup>3</sup> Mills: *Philadelphia Medical Times*, 1879.

<sup>4</sup> Glaeser: *Berliner klin. Wochenschrift*, 1883.

<sup>5</sup> Macguire: *American Journal Neurology and Psychology*, 1884.

<sup>6</sup> Bristowe: *Brain*, 1884.

<sup>7</sup> Bruns: *Berliner klin. Wochenschrift*, 1886.

Mills's is simply an extension from a tumor of the frontal lobe; indeed, all of them are so involved by growths into other parts as to be almost useless in formulating any especial symptom for diagnosis.

Seeligmüller (*l. c.*) gives in accordance with the general teaching for local diagnosis in the brain, as indications, "paucity of tumor symptoms, especially optic neuritis; prominent mental symptoms, bilateral hemiparesis, no paralysis of the cranial nerves." Gowers (*l. c.*): "Mental dulness and weakness in the limbs," qualifying the statement by adding, "that these symptoms are probably due to pressure, or an extension into the cerebral hemispheres; and we do not yet know of any symptoms that are the result of damage to the callosal fibres."

An analysis of the twelve cases gives headache in six, vomiting in one, epileptiform attacks in one, optic neuritis in six (of which two are very uncertain—Glaeser, Bruns); disturbance of intelligence, principally in the form of dementia, in all cases, hemi-paresis in six, para-paresis in three, muscular stiffness in two.

We have clearly in this summary no pathognomonic symptom that can actually refer to the corpus; headache and mental dulness are the most frequent, and no inference could possibly be drawn from them; optic neuritis is rather infrequent, certainly existing in thirty-three per cent., and the others occur much more commonly in disease of other localities.

The following observation was made a number of years ago in the wards of the then visiting physician to Bay View Asylum, Dr. Reynolds; the post-mortem was performed by the writer.

CASE I.—John E., æt. forty-five, was admitted to the hospital department November 4, 1882, with anasarca and ascites of hepatic causation, diagnosed malarial, as the patient had been subject to ague. For several years previous he had been of unsound mind. No family history was obtainable; he only knew that his parents were generally healthy. His insanity had the form of monomania, and was solely confined to the delusions that he was a great inventor, the discoverer of a perpetual motion machine, and other impossible mechanical contrivances. He also imagined that he had a wonderful knowledge of drugs, and would frequently ask to be given "inward tinctures" of unknown composition, "certain to cure his complaint," and to have his entire body "swathed in slippery-elm poultices," of which bark he carried an immense bundle when he arrived at the asylum. He was not at all depressed when his suggestions were not approved of, and would accept, without hesitation, some simple when given to humor him and replace his "inward tinctures."

E. was a man of rather large build, frame well developed, no noticeable peculiarity in the skull formation. The face had an intelligent expression, he spoke clearly, with rather a choice selection of words, and had evidently received some education. The eyes had a tendency to wander around the room when any one was addressing him. He was extremely loquacious, chatting from morning until evening about his inventions,

tinctures, and the like, but could carry on a connected conversation. Memory was quite good, remembered objects and sentences from one day to another without difficulty. Comprehension was not wanting. Hallucinations or illusions were never observed.

There was no headache or vomiting, the eyesight was perfect, there was no incoördination, the movements of the facial, lingual, and muscles of the extremities and trunk were natural, there was no sensory disturbance, the sphincters were under control, the knee reflexes were normal. There were no signs to indicate cerebral disease of any kind except of the mental functions. According to his own statements, he had never drank, nor had syphilis, nor were there any signs of that disease. Death occurred November 26th from pulmonary oedema.

*Section* twenty-two hours after death. Cadaveric rigidity well marked. Body little emaciated. Skull rather thin but with diploë well developed. Upon the inner surface of the occipital bone, the natural slight eminences in front of the anterior condyloid foraminæ were considerably enlarged; otherwise the skull was symmetrical. The dura mater was normal. The arachnoid space contained no fluid. The pia mater was injected, distended capillaries being seen everywhere in it. The membrane was slightly thickened, and did not peel off readily, but did not drag the cortical matter away with it. Both hemispheres were about equal in size. The frontal lobes, from their middle forward, were exceedingly small, and distinctly depressed below the level of the posterior portions, as could readily be seen on taking the brain in the hand and looking from before backward.

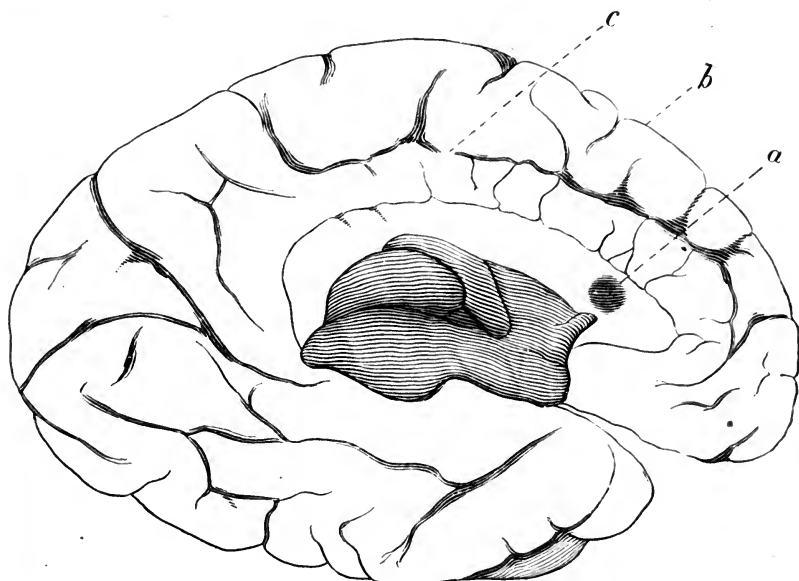
The two hemispheres were separated by a longitudinal incision through the centre of the corpus callosum, when, on examining its cut surfaces, a small, soft tumor of the size of a filbert, grayish in color, without a sharp line of demarcation between it and the sound fibres, was found just posterior to the genu, directly in the middle of the exposed portion of the body, with a thin layer of white fibres above and below, and a considerable body of them in front (Fig., *a*). Cuts made laterally through the tumor showed gray rami of apparently sclerotic fibres, extending into the centrum ovale, toward the tips of the lobes. The basal vessels were sound.

The hemispheres were hardened in a solution of potassium bichromate for further examination; the bulb and a portion of the cerebellum in Müller's fluid, the latter organs being apparently sound.

In the thorax, the heart was normal, valves perfect, muscular walls well nourished. The lungs were throughout oedematous; at the bases some hypostatic pneumonia. In the abdominal cavity the liver was a little enlarged, hard, with thickened capsule. The spleen was also enlarged. Other organs normal.

After hardening the brain for a sufficient time to allow it to become quite firm, the convolutions were studied and sections made horizontally from above downward. The convolutions were richly developed and very complex. On the left side, in the frontal lobe, there was a complete reduplication of the second frontal, making four convolutions. All resolved into an intricate plexus, perhaps more apparent on account of the atrophy. The sulci were wide. An exceedingly deep fissure broke the ascending frontal convolution opposite the superior frontal sulcus, separating the paracentral lobule. The fissures of Sylvius and Rolando pursued their usual course. The convolutions of the parietal, occipital,

and temporal lobes though intricate conformed to the regular type. On the internal aspect of the hemisphere the only irregularities were a slight bit of cortical matter bridging the calloso-marginal fissure in its posterior third (Fig., *c*), and a frequent transverse fissuring of the gyrus fornicatus.



Left hemisphere.

- a.* Tumor.
- b.* Line of demarcation or depression.
- c.* Pli de passage.

On the right side the second frontal was again completely reduplicated, but the anterior part of the frontal convolutions was more withered, the gyri being exceedingly thin, sulci wide, and the line of depression more pronounced. On neither side were the under surfaces of the lobes perceptibly involved, the convolutions being normal in size. On the mesial aspect only the superior frontals were in part involved.

The ascending frontal was interrupted opposite the first and third longitudinal convolutions by two deep furrows, extending into the Rolandic fissure, the lower being the deeper. The Sylvian and Rolandic fissures were like those of the left hemisphere. The inter-parietal sulcus was bridged by a broad pli de passage a little in front of the parieto-occipital fissure which united the two lobes. The remainder of the convolutions conformed to the left side. On the internal surface an exceedingly broad and broken frontal convolution, fused completely in its middle and posterior thirds with the gyrus fornicatus, which was itself conjoined with the convolutions of the lobus quadratus. Posterior to the occipito-parietal fissure the topography returned to the usual type.

The calloso-marginal fissure commenced beneath the anterior extremity of the corpus callosum, ran regularly a short distance until interrupted

by the uniting of the gyri, after which but indistinct traces of its course could be seen. The paracentral lobule, instead of being furrowed transversely, was divided by two deep longitudinal sulci.

Section of the brain gave normally formed ventricles, ganglia, and internal capsules. Fornix, corpora albicantia, anterior commissure, and velum well developed. The cortex in the wasted areas averaged about two millimetres at the apices of the convolutions.

The histological examination of the cerebellum showed the nervous structures to be intact, the vessels somewhat distended with blood. In the medulla there was a very coarse granular degeneration of a number of the multipolar cells in the nuclei on the floor of the ventricle, better developed in both nuclei of the hypoglossus than elsewhere. The upper part of the spinal cord was normal.

The wasting of the frontal lobes formed the inexplicable feature of the case. The nerve fibres of the corpus callosum, being connected at either extremity with ganglion cells, are not supposed to degenerate; the basal vessels were sound—even if they had not been, it is difficult to conceive of a vascular lesion affecting so symmetrically both hemispheres, particularly as there are no known vessels that are exclusively distributed to these localities. Moreover, the measurements of the gray matter showed the greater portion of the atrophy to be in the white tracts.

Very recently the enigma received a partial explanation through a second tumor of the same part, kindly given to me for examination by Dr. Councilman, of the Johns Hopkins University, but which was, unfortunately, too diffuse for purposes of topical diagnosis.

CASE II.—This tumor, a gliosarcoma, occupied the whole central region of the corpus callosum, a portion of the left anterior lobe not extending to the cortex, and both optic thalami in part. But the right lobe was free, to a certain extent, and from this numerous sections were made; some parallel with, and including the corpus, some so cut as to give different views of the callosal, projection, and arciform fibres, and stained with Weigert's hematoxylin. The left of these sections contained almost entirely tumor tissue, with a few scattered nerve fibres, but as the slide was passed to the right more and more medullated fibres came to view, until the sub-cortical layers were free in places from the sarcomatous tissue. The fibres of the projection system gave little evidence of degeneration, though occasionally a single fibre might be seen changed, the arciform fibres being beyond the tumor's limit had none, the callosal ones, on the other hand, presented quite a variety of alterations; in some sections large numbers of them could be seen degenerated, with here and there more perfect bundles lying in their midst; where the tumor encroached upon them there were drops of myeline and débris, marking a somewhat recent process, but no granular corpuscles. Great difficulty was experienced in tracing these callosal fibres up to the gray tissues, from their dipping under a bloodvessel, or being interrupted by a spur of the sarcoma-substance, but occasionally it was possible to follow them almost to the lower layers of the brain rind, where they were finally lost.



This degeneration of the commissural fibres accounts for at least a portion of the atrophy in the first case, possibly had the growth been slower, and of longer duration (it was about four months from the date of the traumatism, which apparently caused it, until death), nearly all of the nerve tubes would have followed their fellows.

The duration of the morbid growth in Case I. is a question with an uncertain answer. A friend of the patient, whom I questioned, told me that his mental state had existed for several years. The nature of a glioma is to be very slowly progressive, also the atrophy of the frontal lobes in their anterior portions must have taken a considerable time to advance to the state they were in when death supervened. Can we connect the tumor and wasting with the monomania, which would be against the theories of the most recent writers on the corpus callosum?<sup>1</sup> It is a very open question, taking into consideration the imperfect development of the hemispheres; psychical disturbance is, nevertheless, the most constant result of tumors of the forepart of the brain, and if lesions of the organ have any symptoms, it should be the most constant of them.

From an anatomical, as well as functional view, the case is most interesting and instructive. It accords with Meynert's,<sup>2</sup> as well as Obersteiner's<sup>3</sup> idea: that the callosal system binds together identical portions of opposite hemispheres, both frontal halves being nearly symmetrically atrophied; but completely negatives Hamilton's,<sup>4</sup> of the callosal fibres forming a large part of the internal capsule, and I think proves, as well as a single case can, that the function of the fibres is simply to connect the hemispheres, or, rather, parts of them. Cases, it is true, exist where the corpus has been completely absent without mental peculiarity,<sup>5</sup> but they are very rare, and only prove that the hemispheres may coördinate without its assistance, probably through the medium of the enlarged anterior commissure, as in the cited case, which has the same function (Obersteiner), and has been absent in a number of cases where idiocy was complete.

It would seem from the lack of atrophic changes in the inner and under parts of the frontal lobes, that either the callosal fibres had no connection with those parts, or that they were conjoined by the fibres of the knee and beyond, the latter view being more probably correct.

<sup>1</sup> Vide Erb, Virchow's Arch., Bd., 97, S. 329; and Kaufmann, Arch. f. Psych. und Nervenkrankh., xix., 1888.

<sup>2</sup> Meynert: Klinik der Erkrankungen des Vorderhirns, p. 41, Wien, 1884.

<sup>3</sup> Obersteiner: Nervöse Centralorgane, Leipzig, 1888.

<sup>4</sup> Hamilton: Brain, 1885.

<sup>5</sup> Vide Eichler: Arch. f. Psych., vol. viii., 1878.

## A STUDY OF METASTATIC CARCINOMA OF THE STOMACH.

REPORT OF A CASE OF PRIMARY CARCINOMA OF THE TESTICLE;  
SECONDARY INVOLVEMENT OF THE VENA CAVA INFERIOR;  
MESTASTASES IN THE LUNGS, STOMACH, AND  
FALX CEREBRI.

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At a time when rapidly increasing knowledge of the etiology of disease is daily disclosing new possibilities of preventive medicine, no one can fail to hope for some new light upon the causation of malignant tumors. One after another pathologists have essayed the solution of this most hidden problem, and their repeated failures serve only to emphasize the paucity of material from which to educe a satisfactory theory. Generalization without facts is impossible. Facts, then, are what are needed to-day, and facts in medicine are carefully reported cases. It is in the hope that some suggestion may be contained in it that the following case is presented.

I desire here to express my indebtedness to Drs. Robert A. Murray and Farquhar Curtis, surgeons in charge of the case, for the use of the clinical history, and to Dr. John S. Thacher, pathologist to St. Luke's Hospital, for the account of the autopsy and the specimens.

Charles H., a German, aged thirty-nine, single, a laborer by occupation, presented himself at St. Luke's Hospital on July 16, 1889, complaining of a painful tumor of the right testicle. Twenty years before he had ruptured himself while carrying a heavy weight, and had since that time worn a truss. During the previous winter he had been obliged to provide himself with a new truss, which fitted badly, causing him much discomfort and considerable irritation of the parts. This was worn for several months until he could endure it no longer. About the middle of April he noticed that the right testicle was tender, harder, and somewhat larger than before, and about two months before admission to the hospital he noticed a hard mass extending upward and outward from the testicle, to which it appeared to be attached. He stated that this tumor had been separable from the hernial tumor, which was always easily reducible. Incomplete descent of the right testicle existed during childhood, the organ lying in the inguinal canal. This condition persisted until he began to wear the truss, by which the testicle had been prevented from retracting.

Patient said that he had been very healthy, that he was only a moderate drinker, and had never contracted either gonorrhœa or syphilis. No evidence of renal, pulmonary, or cardiac disease. Family history negative.

Examination disclosed a hard, nodular, tender mass in the right scrotal sac about four inches long and one and one-half inch in diam-

eter, running upward to the inguinal canal. External to and above this mass was the sac of a reducible inguinal hernia.

On July 18th Dr. Murray operated, amputating the diseased testicle and sewing up the sac for the radical cure of the hernia. Recovery after the operation was rapid, and on August 27th the patient was discharged, apparently well.

Examination of the amputated testicle by Dr. Thacher showed it to be enlarged ( $1\frac{3}{4} \times 1\frac{1}{4} \times 1\frac{1}{4}$  inches), rather firm in consistence, and of a mottled appearance on section. The epididymis was also enlarged to a diameter of  $\frac{3}{4}$  of an inch, and on section presented a white surface dotted by several minute soft dark spots. Microscopic examination of the testicular tumor showed it to consist of a connective tissue stroma containing an abundance of irregularly shaped alveoli filled with cells, which are described as round or polyhedral in shape (except those at the periphery of the alveoli, many of which were cylindrical), and as completely filling the sharply outlined alveoli. The diagnosis *carcinoma testis* was returned.

For two months after leaving the hospital patient felt very well and was able to do light work, the hernia not returning. Toward the end of October, however, he began to experience gradually increasing pain in the right inguinal region, and soon a tender tumor was appreciable in the same location. Loss of flesh and strength followed, his appetite failed, and he began to be much annoyed by constipation.

On December 13th he applied for readmission to the hospital. The tumor was found to extend upward as far as the level of the anterior superior spinous process of the ilium, and inward to the external border of the rectus abdominis muscle. It was hard, nodular, and tender.

Five days later laparotomy was performed by Dr. Farquhar Curtis. Enlarged lymphatic glands were found along the course of the spermatic cord, and a mass of considerable size lay against the lumbar vertebræ. It was thought inadvisable to attempt the removal of any of the tumor and the abdominal wound was accordingly closed.

On the 22d he complained of pain in the chest and cough, and signs of general bronchitis and consolidation of the lower lobe of the left lung developed, with considerable rise of temperature and blood-streaked sputum. Poultries were applied and ammonium carbonate and whiskey were administered. This condition continued five days, after which the signs of pneumonia disappeared. The bronchitis continued, however, until his death, as did an irregular temperature, ranging up to  $103\frac{1}{2}^{\circ}$  at times. Pain in the region of the tumor now became a distressing symptom, necessitating the free use of morphine. Thus he continued, gradually declining, until January 20, 1890, when, after a chill, signs of consolidation of the middle of the left lung posteriorly made their appearance. From this time he steadily weakened, and died on February 9th.

*Autopsy* (thirty-six hours after death, by Dr. Thacher, from whose report I quote).—Small frame; muscular development slight; adipose extremely scant. Diaphragm: right, fifth rib; left, fifth rib.

Left lung: Many old adhesions. Very numerous nodules scattered through the lung varying in size up to one and one-half inch in diameter, most of them white with reddish spots, and mostly well circumscribed, but in the lower part of the lower lobe there is much diffuse infiltration of white tissue. The majority of the nodules are of enceph-

aloid consistence, but some are a little firmer and a few are broken down, and contain a thick, reddish fluid. In the upper lobe there is some thick cicatricial tissue and a few patches of broncho-pneumonia are visible, besides a few clusters of small tubercles and some small cavities or dilated bronchi filled with pus. Weight, 2 pounds 5 ounces.

Right lung: Many old adhesions; very many nodules similar to those in the left lung, wholly circumscribed. At the apex much cicatricial tissue and many gray tubercles. Weight: 2 lbs. 13 ozs.

Bronchial glands enlarged and contain light nodules of cheesy consistence.

Heart: Fat scant; muscle pale; valves normal. Weight: 9½ ozs.

Liver: Slight nutmeg appearance. Gall-bladder contains a little black bile. Weight: 3 lbs. 13 ozs.

Pancreas small; no lesion. Weight: 1½ oz.

Left kidney: Ureter and supra-renal capsule normal. Capsule non-adherent; surface smooth, stars congested, a little pale between. On section cortex somewhat opaque and congested. Weight: 4½ ozs.

Right kidney presents same appearance as left, except that ureter and pelvis are much distended, and the congestion of the cortex is more marked. Weight: 4 ozs.

Mesenteric glands are slightly prominent, firm and white.

Stomach: In the cardiac portion near the larger curvature is a mass resembling the other tumors, apparently in the submucous coat. On section this is found to consist of two small nodules, each about one-quarter inch in diameter, of soft consistence. The stomach contains much mucus. Weight: 5½ ozs.

Intestines: Lower part of ileum and the large intestine much contracted; some moderate congestion in places.

Bladder a little congested. Prostate normal. Seminal vesicles distended. Left testicle normal.

A mass of nodular growths, one to one and a half inch in diameter, lies along the psoas muscle and vertebral column from Poupart's ligament to the diaphragm. A few isolated nodules lie along the thoracic vertebræ. The mass in the pelvis envelops in great part the large vessels there, and in the lower portion of the vena cava inferior and in the right common iliac vein there are firm clots, somewhat adherent in spots, gray and soft. A few small nodular growths project into the vena cava; some of these appear ulcerated.

Brain: In the falx cerebri, about one and one-half inch from the anterior end, is a tumor one inch in diameter, irregularly nodular, and of encephaloid consistence, reddish exteriorly, but gray in centre. Brain otherwise normal. Weight: 2 lbs. 11½ ozs.<sup>1</sup>

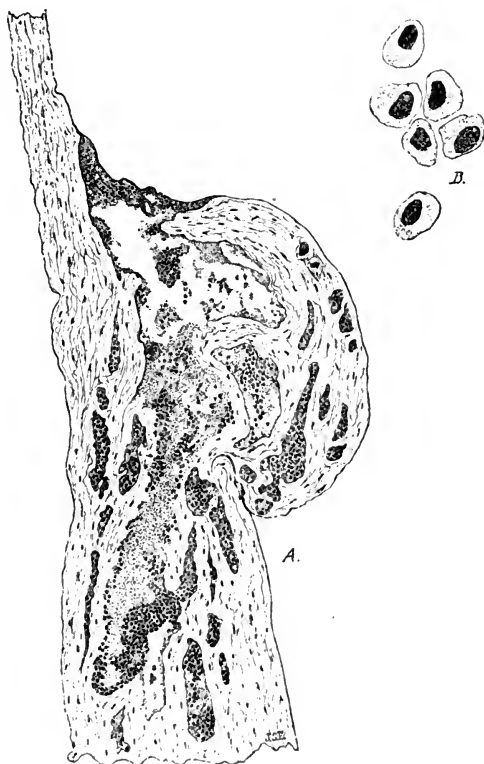
*Microscopical examination* of portions of the neoplasm from the pelvis, stomach, lungs, and bronchial glands shows the structure to be essentially the same in all. In a firm connective tissue stroma are many irregularly shaped alveoli, each sharply outlined and filled with a mass of round and polyhedral cells, having rather voluminous cell bodies and large nuclei, and heaped in the alveoli without supporting reticulum of any sort. These cell-nests are, many of them, of considerable size, and are very

<sup>1</sup> The specimens from this case are in the Museum of the College of Physicians and Surgeons, New York, Nos. 924-927.

abundant, while the stroma is rather meagre in amount, stamping the tumors as medullary or encephaloid carcinomata.

Similar examination of one of the small nodular growths projecting into the vena cava inferior shows it to be in direct continuity with a carcinomatous mass surrounding the vessel, through the wall of which it has evidently grown. In its centre is a cavity containing remnants of soft carcinoma tissue, but the greater part of its contents has been discharged into the lumen of the vein through an evident rupture of the nodule at its upper part, now closed by a loose clot. The accompanying drawing (Fig. 1) has been made from the specimen.

FIG. 1.



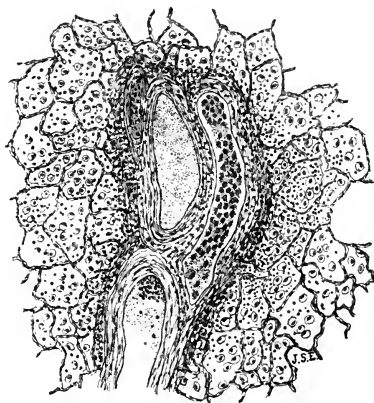
A. Carcinomatous nodule growing on right wall of vena cava inferior and projecting into its lumen. Many alveoli are visible, filled with epithelial cells or their debris. Above is a rupture of the wall of the nodule, closed now by a thrombus, through which some of the softened cancerous material has escaped into the lumen of the vessel. [ $\times 12$ . The cells are represented proportionately somewhat too large.]

B. A group of the carcinoma cells from the same specimen. [ $\times 500$ .]

In the lungs many of the smaller bloodvessels are plugged by masses of epithelial cells, similar in every particular to those described as occupying the alveoli of the cancerous tissue in the various organs. They must be regarded as emboli of carcinomatous material, demonstrating

that the blood current has been, in the present case, the transporter of much of the infectious material from which metastases developed (Fig. 2).

FIG. 2.



Group of bloodvessels in the lung, two of which are plugged by emboli of cancerous material. The tissue of the lung in the immediate neighborhood is somewhat infiltrated with small spheroidal cells, and there is broncho-pneumonia. The other two bloodvessels contain ordinary clots. [ $\times 50$ .]

We have, then, a case of primary encephaloid carcinoma of the right testicle with secondary growth along the course of the lymphatics of the pelvis and spine, involvement of the vena cava inferior, growth through its wall, infection of the blood, and metastases in the lungs, stomach, and falx cerebri. The picture, as a whole, is not unusual. Carcinoma of the testicle, though not of as frequent occurrence as sarcoma of that organ, is by no means rare, is usually of encephaloid variety, commonly affects but one gland, and frequently follows traumatism of some kind. Its mode of extension, too, is usually that exemplified by the present case, along the lymphatics accompanying the spermatic bloodvessels, and an almost constant sequel is the formation of metastases. One feature of the case, however, demands consideration: metastasis in the stomach.

Striking verification of Virchow's aphorism that tumors occur most rarely as metastasis in those organs in which, as primary growths, they appear most often, exists in the relative frequency of primary and metastatic carcinomata of the stomach. As is well known, the stomach is one of the most frequent sites of primary cancer: metastasis in its wall is, on the other hand, a great rarity. Among statistics, tabulated by Coupland (<sup>1</sup>), of 89 cases of carcinoma primary in the mamma, collected from the records of the Middlesex Hospital for the years 1867 to 1875, mention is made of only one metastasis in the stomach. Török and Wittels-

höfer<sup>(2)</sup>, in reviewing the records of the Vienna Pathological Institute, between the years 1817 and 1879, found reports of 366 cases of carcinoma of the mamma, of which there had been formation of metastasis in 220, but in only 8 was the stomach a site. Again, among more than 600 cases of carcinoma in all locations autopsied at the Berlin Pathological Institute, Grawitz<sup>(3)</sup> was able to find record of metastasis in the stomach in only 3<sup>1</sup>. These statistics suggest the frequency of metastatic carcinoma of the stomach to be about 1.1 per cent. of all cases of cancer.

Beside these statistics, there are in the literature more or less full records of 13 cases of metastatic carcinoma of the stomach. To a hasty review of these I ask attention, since from their study it is possible to deduce an explanation of the mode of production of metastases in the stomach, the truth of which is confirmed by the present case.

I. The earliest observation of metastatic carcinoma of the stomach, of which I am able to find record, is reported by Cohnheim<sup>(4)</sup>. The primary tumor (scirrhus) was located in the breast, and many metastases are reported in different organs, among others in the stomach, where fourteen small cancerous masses were found scattered along the greater curvature near the pyloric extremity.

II. In 1876 Weigert<sup>(5)</sup> reported an exceedingly interesting case of epithelioma of the leg, not diagnosticated until after death, when metastatic growths were found distributed along the course of the pelvic and lumbar lymphatics and in nearly all the abdominal and thoracic viscera. The widespread distribution of the secondary tumors received explanation by the discovery of rupture into the vena cava inferior of a cancerous mass situated about the right supra-renal capsule, the infectious material thus finding entrance to the circulation. The metastasis in the stomach was situated at the fundus near the greater curvature, was about an inch in diameter and had ulcerated through the mucous membrane.

III. To the cases already cited four others were added by Grawitz<sup>(6)</sup> in 1881. In the first the primary tumor was an ulcerated epithelioma of the œsophagus. Two metastases, the only ones in the body, were found in the stomach. The first, about the size of a goose egg, ulcerated on its surface, was situated near the œsophageal orifice, involved all the coats of the stomach, and was connected with enlarged and cancerous lymph glands in the neighborhood. The second—smaller—lay near the first on the lesser curvature. There was in addition a simple ulcer of the stomach.

IV. In the second case the œsophagus was again the site of the primary tumor (epithelioma, ulcerated), which had penetrated into the pleural cavity, causing fatal pleurisy. Near the œsophageal opening was a large carcinomatous mass, ulcerated, involving all the layers of the stomach wall. Besides this, the only other metastasis was a small tumor in the liver.

V. Grawitz's third case is one of primary encephaloid carcinoma of the testicle. The stomach was dilated and on its anterior wall, midway between the fundus and pylorus, was a round metastasis about the size of a "plum," slightly ulcerated, occupying the mucous and submucous coats, and freely movable on the muscular. A second metastasis, smaller, on the greater curvature near the first, occupied the submucous coat only. Many metastases were found in other organs—in the lungs, pleuræ, liver, kidneys, suprarenals, intestine, and thyroid gland.

VI. His fourth and last case, was a recurrent scirrhus of the breast in a woman sixty-nine years of age. The stomach contained six rather flat tumors, about one-half inch in diameter, of rather dense consistence, and

<sup>1</sup> One of these had previously been reported in detail by Cohnheim (see Case I.).

confined to the submucous coat; none of them being ulcerated. This case is further noteworthy because of the great number of metastases in nearly every organ of the body, and especially in the large nerve-trunks of the brain and spinal cord. Involvement of the large veins near the heart was discovered, and small metastatic tumors were found in the interauricular septum.

VII. In 1882, in reviewing the records of the Leyden Clinic for about ten years, van Haren Noman (<sup>7</sup>) unearthed accounts of five additional cases of carcinoma of the stomach supposed to be metastatic, but, as the findings in his second case do not appear to me to warrant this conclusion, I shall mention the others only. The first was a case of primary carcinoma of the œsophagus at the level of the cricoid cartilage. It was ulcerated, and immediately below it was a large cauliflower excrescence nearly occluding the gullet. Below this the œsophagus was normal. In the stomach near the cardiac orifice was a metastasis about the size of a pea. This was the only metastasis in the body.

VIII. The third case was that of a man, nineteen years of age, who died of a large carcinoma of the left suprarenal capsule. The submucosa of the stomach was found to contain a number of metastatic tumors about the size of peas, over which the mucous coat was freely movable. Other metastases existed in the liver and peritoneum.

IX. The fourth case is that of a woman, thirty-five years old, whose pelvis was filled with a carcinomatous mass apparently originating from the rectum. The process extended upward through the lymphatics along the spine. A small ulcerated metastasis was found on the lesser curvature of the stomach.

X. Noman's fifth case was an ulcerated epithelioma of the œsophagus. Numerous metastases are recorded—in the liver, bones, and in the wall of the stomach.

XI. Two years later, in 1884, a case of primary epithelioma of the œsophagus was reported by Beck (<sup>8</sup>). The tumor ulcerated through the trachea, and the patient died of secondary gangrene of the lungs. In the stomach a metastasis was found, which Beck attributes to the implantation of carcinoma cells swallowed from the ulcerated tumor of the œsophagus.

XII. Finally, during the past year two additional cases have been reported by Zahn (<sup>9</sup>). In the first, the primary tumor (scirrhus) was situated in the left breast, the lymph-glands of the axilla being secondarily involved. A dense metastasis was found at the pyloric end of the stomach, in the submucous and muscular coats. Other metastases occurred in the omentum, peritoneum, ileum, colon, pancreas, and adventitia of the aorta. Zahn believes the transfer of infectious material, giving rise to the metastases, to have taken place through the bloodvessels.

XIII. In the second case, an ulcerated epithelioma occupied the wall of the œsophagus at about the level of the bifurcation of the trachea. Below this the œsophagus was apparently normal. Three small tumors, about the size of peas, in the wall of the stomach, were the only metastases to be found. These were all situated in the fundus.

These thirteen cases, with that here reported for the first time, may be conveniently tabulated as follows:



TABLE OF CASES OF METASTATIC CARCINOMA OF THE STOMACH.

Case.	Site of primary tumor.	Variety of primary tumor.	Metastases in stomach; number and situation.	Metastases in other organs.	Involvement of bloodvessels.
I. Cohnheim,	Mamma.	Scirrhus.	14, scattered along greater curvature near pylorus.	Very many.	
II. Weigert,	Leg.	Epithelioma.	1, at fundus, near greater curvature.	In nearly all the thoracic and abdominal viscera.	Rupture of cancerous mass into vena cava inferior.
III. Grawitz,	Œsophagus.	Epithelioma, ulcerated.	2, first near Œsophageal orifice, ulcerated; second near by on lesser curvature; in addition, simple ulcer.	None.	
IV. Grawitz,	Œsophagus	Epithelioma, ulcerated.	1, near Œsophageal opening ulcerated.	Small metastasis in liver the only other.	
V. Grawitz,	Testicle.	Encephaloid carcinoma.	2, first on anterior wall, about middle; second, on greater curvature.	Many, in lungs, liver, kidneys, suprarenals, intestine, thyroid gland.	
VI. Grawitz,	Mamma.	Scirrhus.	6, confined to submucous coat.	Very many, in nearly every organ of body.	Large veins of thorax involved.
VII. Noman,	Œsophagus.	Epithelioma(?) ulcerated.	1, near Œsophageal orifice, about size of pea.	None.	
VIII. Noman,	Suprarenal capsule.	Carcinoma.	Several small metastases in submucous coat.	Numerous, in liver and peritoneum.	
IX. Noman,	Pelvis (rectum?)	Carcinoma.	1, small metastasis on lesser curvature.	?	
X. Noman,	Œsophagus.	Epithelioma, ulcerated.	One	Numerous, in liver, bones, etc.	
XI. Beck,	Œsophagus.	Epithelioma, ulcerated.	One.		
XII. Zahn,	Mamma.	Scirrhus.	1, at pyloric end of stomach.	In peritoneum, ileum, colon, pancreas, adventitia of aorta.	
XIII. Zahn,	Œsophagus.	Epithelioma, ulcerated.	3, in fundus.	None.	
XIV. Ely,	Testicle.	Encephaloid, carcinoma.	2, in submucosa, near greater curvature.	Very many in lungs, in falx cerebri, along pelvic and lumbar lymph vessels.	Ingrowth of tumor into vena cava inferior, and discharge of infectious material into its lumen.

It will be seen, from an inspection of this table, that the cases belong to two distinct sets; first, that in which the tumor in the stomach was the only, or almost the only, metastasis in the body; and, second, that in which many metastases were present in other organs. This difference at once suggests a different mode of infection in the two classes of cases, and on returning to the table we are struck by the fact, that in all the cases in which the tumor in the stomach was the only metastasis the primary tumor was situated in the œsophagus. These facts together suggest the possibility of direct transfer of portions of the primary tumor through the œsophagus to the stomach and engraftment upon its mucous membrane, in this way giving origin to a secondary growth. So accustomed are we to think of the blood- and lymph-vessels as the channels of transmission of cancerous material that the possibility of any other is apt to be overlooked. In the present instance, however, the anatomical arrangement of the lymphatics of the œsophagus is such as to make any transfer of material through them to the stomach practically impossible. Arising from a plexus lying in the submucosa of the gullet, the lymphatic trunks perforate the muscular wall and terminate in the glands of the posterior mediastinum, which in turn discharge into the thoracic duct. Only through occasional anastomoses of capillaries of the lymphatic plexus in the two organs is there any connection between the lymphatics of the œsophagus and stomach. The same difficulty stands in the way of crediting the bloodvessels with the transmission of the infectious material in these cases, for the circulation in the two organs is quite distinct. The possibility of such transfer through the bloodvessels is, of course, not to be denied (it is exemplified, I believe, in Case X.), but in such cases it is scarcely conceivable that there should be metastasis in the stomach only—a striking feature of the group of cases of which we are speaking.

As no reference is intended in this paper to cases of secondary involvement of the stomach by growth by continuity from other organs (such cases having been carefully excluded), the only remaining channel of communication between œsophagus and stomach is the lumen of these organs themselves. In favor of the view that this is in reality the path of transmission of infectious material in these cases, are the well-known tendency of œsophageal cancer to ulcerate, thus affording ample material, and the situation of the metastatic growths in the cardia of the stomach near the œsophageal opening. But, if we are to accept this theory, the possibility of engraftment of carcinomatous material upon a mucous membrane must be admitted. Notwithstanding many failures, a few measurably successful inoculations of carcinomatous material in animals are on record <sup>(10)</sup>, and, in estimating the significance of negative results of inoculation experiments, the necessary existence of certain predisposing conditions before infection can occur should not be

forgotten. That these predisposing conditions are rarely present, is shown by the rarity of metastasis in the stomach in cases of carcinoma of the œsophagus. Among forty-two such cases collected by Petri (<sup>11</sup>), in only two was there metastasis in the stomach.<sup>1</sup> Furthermore, there are a number of cases of metastatic cancer on record apparently inexplicable on any other theory than that of engraftment of infectious material on a mucous surface, and among these I am inclined to class most cases of primary cancer of the œsophagus with metastasis in the stomach.

Let us now turn to a consideration of the conditions in the second set of cases which our table presents. It will be remembered, that in the cases forming this group metastases were widely distributed throughout the body. Dissemination of the infectious material through the blood or lymph vessels is consequently at once suggested, and that one of these must, in fact, be the channel of spread of the disease is confirmed by the remoteness of the primary tumor from the stomach.

The anatomical arrangement of the lymphatics of the stomach is such as to render the possibility of transmission of infectious material to it through them extremely remote. Arising in the wall of the stomach they pass upward and downward over its surface to the lesser and greater curvatures, respectively, where they enter a few small lymph nodes lying along the attached borders of the corresponding omenta. The lymphatics of the lesser curvature accompany the coronary vessels to the cardiac orifice, and then turn downward behind the pancreas to enter the cœliac glands; those of the greater curvature pass toward the pylorus, accompanying the right gastro-epiploic artery, and after being joined by lymphatics from the upper portion of the duodenum, also pass into the cœliac glands. A third series of lymphatics proceed from the left end of the stomach, and, following the course of the gastric branches of the splenic artery, unite with the lymphatics of the spleen. (Quain.) Now, the circulation in all these lymphatics is *away from* the stomach, not to it. If, therefore, we suppose infectious material to be carried to the stomach through the channel of its lymphatics, we must also suppose it to be transported in opposition to the current of the contained lymph and against the resistance of the valves of the lymph vessels—a supposition highly improbable in view of the fact that the lymph current itself is the transporting agent. Furthermore, in such transport, if it were possible, certain lymph nodes would necessarily be passed before the infectious material could reach the stomach, and these have, in most cases of metastatic carcinoma of the stomach, been found to be uninvolved in the new growth. In the present case, examination shows them to be healthy.

<sup>1</sup> These statistics are included in those of Grawitz referred to above.

Besides this negative evidence, we are in possession of certain facts distinctly in favor of the view that the blood-current is the transporting agent in this second group of cases. In the first place, these metastases are usually found on either the greater or lesser curvature, or very near them—directly in the course of the arterial supply of the stomach. Secondly, in a number of cases involvement of large veins in cancerous masses in various parts of the body has been discovered—positive demonstration of infection of the blood in these cases. And, finally, in this second group of cases other metastases, inexplicable apart from the theory of infection through the bloodvessels, are numerous in nearly every case.

As the result, then, of our study, we conclude that metastatic carcinoma of the stomach may arise in one of two ways: first, by implantation of carcinomatous material transported through the œsophagus from ulcerated cancer higher in the alimentary tract; and, second, by transport of infectious material from a distance through the blood-current; and that the lymphatics must be an extremely rare channel of transport of infectious material of any kind to the stomach.

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## CASE OF TYPICAL DERMATITIS HERPETIFORMIS.

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DURING the past month a typical example of this affection has been under almost daily observation, and the symptoms have been so pronounced and so characteristic of the usual form of the disease that I desire to add the case to the list of those already published. I describe the case, moreover, because there seemed to be some doubt as to the diagnosis in the minds of the several well-known practitioners who had charge of the gentleman before he came under my observation.

Mr. S., of Cincinnati, consulted me about the middle of January of the present year, with a letter describing his previous condition and treatment from Dr. Ransohoff, under whose care he had been for some time. The doctor's letter states that the patient (a man about fifty years of age and of dark complexion), who had before always enjoyed good health, manifested "squamous eczema" of both hands about a year ago. Four months later the present illness began with the development of blisters of the size of a pea or bean on the hands, wrists, feet, and ankles. In July last, a fully developed "pemphigus simplex" existed, the blebs being as large as a silver dollar, tense, and containing a clear fluid. These appeared in successive crops all over the body. During the four months of the acute attack hardly a square inch of the surface was left uninvaded. When the blebs disappeared excoriations of similar dimensions remained, but which were soon covered again with epidermis.

Loss in weight, most distressing itching ("pemphigus pruriginosus"), and from time to time septic manifestations; low, muttering delirium, slight elevation of temperature, rapid and irregular heart action, heavily coated, dry tongue, diarrhoea, and profuse night-sweats, were all present. Under sustaining treatment and local remedies, such as the continuous bath for two weeks, swathing in oil, oxide of zinc and bismuth bandages, the patient finally began to improve, and was able to leave home for a change of climate. When last seen the itching still persisted, and the skin, especially of the extremities, presented a livid hue and was sodden. It, moreover, was elevated in the form of large, indurated papules where formerly vesicles (which did not rupture) had existed. Dr. Ransohoff concludes his letter by stating that at first the diagnosis of dermatitis herpetiformis was made, but that later, when at its height, the disease seemed to possess the features of pemphigus pruriginosus; while still later, as improvement set in, it again approached dermatitis herpetiformis.

When I first saw the case the skin was much inflamed, excessively pigmented, of a dirty-looking, mottled, yellowish, brownish color, thickened, and the seat of an extensive eruption, consisting of small and large, more or less confluent, inflammatory patches, together with distinct individual lesions, occupying almost the entire general surface. The trunk and the upper and lower extremities were completely covered with a multiform eruption of a mixed chronic, subacute, and acute character, arising from a chronically inflamed, infiltrated, and toughened skin.

The greatest possible variety of inflammation existed in the form of a continuous mass or sheet of eruption, there being no healthy skin on the affected regions.

The lesions were macules, maculo-papules, papules, irregularly shaped and defined, flat or spread out (as in erythema multiforme), and of variable dimensions; vesico-papules and vesicles varying in size from a small pinhead to a pea, some being flat, glistening, and blister-like, others raised and surrounded with a somewhat drawn-together or puckered, highly inflamed base, as in herpes zoster. Many of the vesicles were minute and scarcely visible, except in oblique light. Here and there blebs existed, some small, others large; also small pustules, which evidently had begun as pustules, some of them being flat and punctate, pinhead and millet-seed sized.

On the shoulders and upper part of the back the existence of small, mostly miliary lesions (papules, papulo-vesicles, vesicles, and pustules), commingled and in all stages of evolution, and grouped into patches, some of them marginate, together with the marked pigmentation, suggested a likeness to a subacute, copious, miliary, herpetiform syphiloderm.

Excoriations and abrasions, due to scratching, blood-crusts, and slight yellowish and brownish crusts about the summits of vesicles and pustules, together with torn adherent epidermis, were also present, the whole picture being one of great multiformity, such as is noted in no other disease. As is well known, marked multiformity is often observed in scabies of several months' duration, but the affection here was even more polymorphous than occurs in that disease.

The lesions were aggregated, grouped, and disseminated, but the eruption as a whole was herpetiform,—the distribution, general arrangement of the individual lesions and of the patches, the progress and the manner of extension, all suggesting certain symptoms common to either erythema multiforme, herpes iris, or herpes simplex. Here and there the close grouping or bunching of three or four usually minute or small vesicles or vesico-pustules upon an inflamed base resembled an abortive patch of herpes zoster. The disease, however, bore more likeness to erythema multiforme of an advanced stage and of a severe type than to any other affection. Furthermore, itching and burning were present to an excessive degree, tormenting him by day and by night. He was, moreover, nervous, irritable, and anxious.

I will now enumerate the local remedies that were employed, and comment briefly on their action, which, it may be here remarked, was far from satisfactory.

The patient stated that a number of remedies had been previously used without affording much relief, among them the various soothing and more stimulating washes and ointments useful in eczema. Those prescribed by me consisted of sulphur in the form of ointment, both weak and strong, and also in the form of a dusting powder, "liquor carbonis detergens," ichthyol, as a wash and as an ointment, weak and strong; mild salicylic acid ointment, fluid extract of grindelia robusta as a lotion, weak and strong, and carbolic acid as a lotion, all having been made use of from time to time. The most useful were sulphur ointment, two to three drachms to the ounce, and "liquor carbonis detergens," from

one-half to two drachms to the ounce. These remedies, as well as others, were employed on various parts of the body, and with each experiment it was the rule to make the application of one remedy to one lateral half and another to the other half of the body with the view of determining the relative merits of each. The fluid extract of *grindelia robusta* on several occasions was found to be of some value, but the sulphur ointment was the most useful. This was used with considerable friction in order to break down the vesicles, as in the case of scabies, and on several occasions improved the skin and relieved the itching. Internally, antipyrin, antifebrin, phenacetin, chloral, and belladonna were all prescribed to meet symptoms, but with only moderate success.

During the four or five weeks which followed, the disease on two occasions improved considerably, but again became worse, the process manifesting itself in the form of exacerbations, each lasting about a week. Now and then large blebs formed here and there, especially on the thighs. On the trunk the lesions were at one time more erythematous, at another time more vesicular. The herpetiform element, more or less well-defined, remained constant, and constituted a feature of the disease.

In conclusion, the case may be summed up as showing the disease in its typical form, characterized by a multiform eruption of slightly raised, erythematous, herpetic patches, more or less confluent, together with papulo-vesicles and vesicles and blebs of variable size, shape, and outline, likewise as a rule herpetic. The thickening of the integument and the marked pigmentation from the oft-repeated attacks of eruption and scratching, and the itching and burning were also conspicuous symptoms. The general health was at times considerably disturbed, as shown by the nervous, anxious, irritable state, the loss of appetite and of sleep, and the excessive sweating and great thirst. The urine was cloudy and dark, and variable in quantity, as is the case in other forms of general nerve depression.

In the matter of diagnosis, the disease, during the period it was under my observation, could hardly be mistaken for any other affection, surely not pemphigus, because blebs were the exception; nor would eczema suggest itself, because of the prevailing herpetiform characters of the individual lesions and of the patches. Everywhere and on all occasions the eruption showed itself to be under the control of the peripheral nerves, as in the other more marked and better known forms of herpetic diseases.

THE FURTHER HISTORY OF A CASE OF ANEURISM OF THE  
THORACIC AORTA OF UNUSUALLY LARGE SIZE, ATTENDED  
WITH LOCALIZED UNILATERAL SWELLING.

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IN this JOURNAL for March, 1888, I reported a case of aneurism of the thoracic aorta, in which sweating over a limited area of the chest wall had been repeatedly observed. At the time of the publication of that report the patient was in very good condition and had left the Montreal General Hospital, where he had spent the winter of 1885-86, and had gone to resume his occupation as the proprietor of a small eating house. The relief to the symptoms and the manifest diminution in the force of the pulsations in the area between the scapulæ where the tumor reached the chest-walls was attributed to the persistent use of the iodide of potassium.

The case has been under my observation for the last four years, though an interval of a year (1888-89) elapsed without my having seen him.

In the winter of 1887-88 he was in fair health and there was no increase in the area of percussion dulness in the left inter-scapular region, but he had lost weight to a considerable extent. There was no more dyspnœa, and he could sleep with comfort when lying down. There was very little cough.

During the last winter (1889-90) he began to suffer from paroxysms of coughing and from very severe pains in the chest. On November 21, 1889, I made a careful physical examination, comparing every point with the report already published in THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES. He had been taking the iodide of potassium in ten-grain doses twice daily for four years. The pulse at both wrists was equal, but it had entirely lost its collapsing character and there was no longer any visible pulsation in the vessels of the neck. There was no perceptible bulging in the upper part of the chest. The systolic murmur, which was audible four years previously at the back of the chest, was no longer perceptible. There was absolute silence at the base of the left lung up to within two inches of the angle of the scapula.

During the month of November, 1889, the pulsation in the back was so feebly marked that, in order to demonstrate its existence to the students of my clinical class, I had to resort to the device of gumming upright slips of paper to the skin to render more evident the movements of the surface. But, as the winter advanced, there was a great increase in the thoracic pain, and the patient began to experience the semi-anginal attacks previously described. At this time he reported to me a recurrence of the sweating in the left side of the chest, which he had noticed for the first time since he had left the hospital in 1886. The whole of his brown skin was very dry, except over the area in the left



chest corresponding to the neighborhood of the fifth and sixth ribs. This limited area could be seen and felt to be moist, while the skin on the corresponding area on the other side was quite dry. Closer observation convinced me that this moisture appeared whenever the pain became severe, and that when the patient was comfortable and free from pain the skin of the left chest was perfectly dry.

In December, 1889, the patient entered the hospital for the last time. There was then great pain on movement and great muscular weakness. The sweating on the chest was distinctly visible for a few days after admission. Owing to the great pain on movement a complete examination of the chest was not practicable. After some days the pain diminished and it became no longer necessary to administer morphine. The sweating never reappeared. A great change was observed in the area of pulsation. On the 30th of December, after he had been in the hospital a week, this area was found to be extending. Formerly it might have been covered by a circle two inches in diameter, but now it measured 7 x 4 inches, and the pulsation was comparatively very forcible.



During the following fortnight there was much less suffering. A remarkable change took place in the back. The pulsating area now became prominent and protruded a good two inches from the general level of the surface extending from just below the vertebra prominens to the lumbar region and filling up the space between the midline and the angles of the ribs. In outline the tumor had the shape of a large sausage and appeared to lie just beneath the skin, and it measured eleven

inches from above downward, and four inches from side to side. It was universally pulsatile and felt as if there was very little tissue between the skin and the pulsating body. No thrill or bruit perceptible. There was comparative relief from pain coincident with the rapid outgrowth of the tumor. A fortnight later and the tumor measured 13 x 5 inches. The vertebral column does not appear to have been encroached upon, but the growth seems to have taken place in the direction of the angles of the ribs. Death took place on February 4, 1890, apparently by exhaustion. Most unfortunately the relatives objected to an autopsy.

The photograph reproduced in connection with this paper was taken instantaneously, and shows the appearance presented by the aneurism about a week before death. It is possible that the recent rapid development of the tumor may have been the result, not of steady growth of the main sac, but of the formation of a false sac by rupture of the original one, and by the extension of the blood thus extravasated to the tissues.

The case is of interest as showing the presence of a new symptom and the benefits of the iodide of potassium treatment. The enormous size to which a thoracic aneurism may attain without destroying life, is also well illustrated.

## REVIEWS.

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DISEASES OF WOMEN AND ABDOMINAL SURGERY. By LAWSON TAIT, F.R.C.S. Edin. and Eng., LL.D., M.D. (Honoris Causa) of the University of New York, Union University of Albany, and the College of Physicians and Surgeons of St. Louis; Professor of Gynecology in Queen's College, Birmingham; Surgeon to the Birmingham and Midland Hospital for Women, etc. Vol. I. 8vo., pp. viii., 547. Philadelphia: Lea Brothers & Co., 1889.

THE title of this work is somewhat misleading, inasmuch as it implies that it is a systematic treatise on gynecology. As a matter of fact, only one hundred and seventy-five pages of the present volume are devoted to pelvic affections not requiring treatment by laparotomy. From the "table of the organs concerned" it will be seen that it covers about the same ground as Greig Smith's monograph.

Mr. Tait has practically included under one cover revised editions of his earlier and little known work on *Diseases of Women* and his more recent one on *Diseases of the Ovaries*, which differ so widely in character that they can hardly be expected to assimilate. Why he should have devoted one-third of this volume to a subject which he appears to regard with indifference, he does not explain. We can certainly draw no other inference from the preface than that, aside from laparotomy, there is little in the treatment of diseases of women which deserves more than a passing notice. This is not a judicious position for one to take who aspires to remodel a department of medicine in which good work has been done on more conservative lines. The key-note is struck in the following sweeping remark in the preface:

"The old-fashioned mechanical school—the teaching of the speculum, the sound, the caustic stick, and the pessary—has been practically killed, and an advanced eclecticism now prevails. This has largely grown out of the wonderful revelations obtained by the experiences of operative surgery."

We confess that the expression "advanced eclecticism" is somewhat vague; by the "old-fashioned mechanical school" is doubtless meant those misguided individuals who still pay some attention to non-surgical gynecology. Undeterred by this introduction, we are prepared to give full credit to the originality and genius of the author, to whom no candid man can deny that acknowledgment which, as he himself admits, the profession in America have cheerfully accorded.

Chapter I. is devoted to affections of the *mons veneris*, Chapter II. to diseases of the external genitals. In the latter the author makes some very sensible remarks on the delicate subject of sexual perversion in the female, and takes occasion to defend Baker Brown in his characteristic,

frank, and generous manner. It is a noble trait in Mr. Tait to espouse the cause of the dead in whose integrity of purpose he believes; we would venture to express our regret that he does not always show the same magnanimity toward the living who venture to differ from him.

In the section on the perineum he expresses his preference for Simpson's "shelf-pessary" for the relief of prolapsus, if any instrument is worn at all. We do not wonder that this crude appliance has not given him satisfaction after seeing the cut of it (Fig. 8). He has certainly had better results from operative treatment than most gynecologists. The flap-splitting operation is described on pages 68 and 69, where we read that "denuding operations are wrong in principle in so far as they are mere attempts to return the vagina and rectum to their completely tubular forms, and really make no attempt to restore the perineum."

Again, on page 70, the sweeping statement is made that "no other kind of operation will stand the strain of another labor." This is rather hard on the hundreds of operators who have been equally satisfied with other methods of perineorrhaphy. It is hardly the mark of a progressive mind to be content with only one method of doing a thing when another may be better in a given case. We deprecate the multiplication of complicated operations for the repair of lacerated perineum, but we submit that no single one is capable of universal application.

Chapter III., on the vagina, is introduced by four pages on gynecological examinations, in which there is much that we cannot allow to pass unchallenged. We regret that our examining chairs "would soon be the ruin of any British gynecologist who introduced them into his consulting-room." Doubtless our tables would be still more offensive to sensitive English ladies. While we agree with the author that the digital examination of virgins "requires, in every case, a strong justification," we are not prepared to admit that "any man who employs a speculum in the examination of a woman who is a virgin is unfit for the practice of his profession." It is stated that "the most complete and satisfactory" bimanual examination can be made with the patient lying on her left side, and that "when the appendages are perfectly normal the ovaries and tubes can be mapped out quite easily (?) with the fingers of one hand pressed on the groin opposite the side which is to be examined." The latter statement is decidedly at variance with the experience of practised examiners, who have seldom been able to recognize positively the normal appendages except in the most favorable cases and with the exercise of all the cautions recommended by Schultze. The beginner who adopts Mr. Tait's method will be sadly disappointed.

After reading (page 73) that "the speculum requires to be used in examination very rarely," and that "it should be used as an assistant for operative purposes only," we are quite prepared to hear that Sims's instrument is rarely necessary, and that all kinds of bivalve and trivalve specula are "dangerous and absolutely unnecessary." "If a man cannot do his work with Fergusson's speculum, occasionally replaced by the duck-bill, he ought to give it up. A workman who needs complicated tools is an inefficient one or a quack."

"Cases of true vaginismus may occur," says the author on page 79, "but I must assert that they are quite unknown to me." He elsewhere states that vaginismus is "a term which is widely used as a cloak to cover ignorance and carelessness," and that he does not believe in "the spasmodic contraction of a muscle which has existed only as a dissecting-

room curiosity." Without making further quotations we are willing to balance the recorded observations of Sims, Winckel, Emmet, Thomas, and other careful clinicians against this sweeping statement.

Anterior colporrhaphy is denounced on page 82 as a "delusion and a snare," while on the following page we read that "a speedy and safe cure" of dilatation of the urethra "may be effected by removing an elliptical piece of the mucous membrane with its long axis in the direction of the urethra, and bringing the edges together by stitches."

Diseases of the bladder and urethra are treated very superficially. The method of closing vesico-vaginal fistulæ, so successfully practised by Sims and his followers, is curtly dismissed as "bad," the only operation described being the flap-splitting one of Collis, which is "suitable to almost every case, and to many cases which could not be subjected to the older methods with the smallest chance of success." No reference is made to the work of Emmet, from which we infer that the author's study of this difficult subject has not been as thorough as we would wish. "I think," he says, "the only instruments wanted for operation on vaginal fistulæ are a Fergusson's glass-barrel speculum, a straight knife, and a curved-handled needle!"

Chapter IV., on the uterus, covers a wide range of subjects, which are grouped together apparently with little regard to sequence. For practical purposes we may consider that the subject of diseases of the uterus (in fact, the portion of the volume devoted to minor gynecology) is concluded on page 175, where the section on fibroid tumors begins. The author refuses to recognize laceration of the cervix as a lesion requiring operative treatment. "The real trouble," he affirms, "is the subinvolution and the consequent chronic metritis, and nothing more useless than 'Emmet's operation' has ever been introduced into surgical practice." He thus ignores well-established ideas, and sweeps aside by a wave of the hand all that meet with his disapproval. Dilatation of the cervix with tents he rejects as dangerous, preferring to use an appliance (Fig. 11) which in crudeness of design rivals the famous mediæval apparatus of the Hôtel de Cluny. As regards the treatment of cancer of the uterus he is an acknowledged pessimist. "For it there is no cure." Hysterectomy he dismisses with contempt, since "the few cases in which the disease does not recur are clearly errors of diagnosis." (!) The pathology of metritis is hopelessly confused by the attempt to draw a sharp distinction between a traumatic and a septic variety, and to make subinvolution identical with chronic metritis. Ninety per cent. of the author's cases of subinvolution and "all its complications" have yielded to five-grain doses of chlorate of potash given three times daily, with ergot and rest in bed during the menstrual periods—a unique record!

Emmet and Matthews Duncan again come in for sweeping denunciation in connection with the subject of peri- and parametritis. Nor does Virchow escape severe criticism for having by the use of these terms "introduced a wholesale confusion into gynecology which it will take many years yet of industrious work to get right."

Some idea of the author's position in regard to uterine displacements will be inferred from the introductory sentence, in which he states that there has been no real addition to our knowledge of the subject since Simpson's lectures in 1848. There is a good deal of truth in his strictures on the abuse of the operative treatment of antelexion, though their force is weakened by the alternative which he himself offers—either purely con-

stitutional treatment or the removal of the tubes and ovaries. The radical operation he regards as "a far safer proceeding than the employment of intra-uterine stems." Such teaching as this cannot receive general acceptance. "I hate pessaries," he frankly admits, "and I never use them if I can help it." There is no indication from the context that he has ever taken the trouble to learn the elementary mechanical principles on which they act. Any gynecologist whose experience is limited to the "wedge pessary," figured on page 140, is scarcely in a position to discuss authoritatively the subject of displacements. Alexander's operation is decidedly condemned.

Eight pages are devoted to the infantile uterus—more than to the entire subject of displacements—the matter being largely a quotation from Dr. Johnstone's paper; the same applies to the section on uterus bicorniporeus.

In taking leave of the subject of minor gynecology, we regret that Mr. Tait has not omitted this portion of the work entirely since it will certainly be the judgment of future readers, whose minds will be free from our narrow prejudices, that it has not added to his reputation either as a scientific observer or as a teacher. His attitude invites criticism. This is not an age in which even the most ardent hero-worshipper is disposed to follow blindly any leader who does not appeal to the intellect by the soundness of his reasoning, as well as dazzle the imagination by the brilliancy of his surgical achievements. Americans, as Mr. Tait must always admit, have been prompt to acknowledge the immense impulse which he has given to abdominal surgery, but this brilliant meteor which has shot across the sky can never extinguish the clear, steady light of those planets by which we have hitherto safely guided our course.

With much that relates to fibrous tumors of the uterus (which, by the way, ought to have been included in a separate chapter) we are already familiar in the author's former papers. On the subject of treatment he speaks with no uncertain sound. "Under no circumstances," he says, "do I sanction uterine tinkering with injections of astringents or electrical currents." In a patient under thirty he advises removal of the adnexa, even if the symptoms are not urgent, in order to arrest the growth of the tumor; in one over thirty-five, prompt resort to the operation if the rate of growth is rapid; in one over forty, palliative treatment, if possible, with a preference for laparotomy. A clear distinction is not made between intra- and extra-uterine tumors; in fact, the author seems to regard this as immaterial. From the brilliant results set forth in the table of statistics (262 cases of removal of the appendages with only four deaths) we are directed to the sharp contrast presented by the work of Apostoli and his followers (page 216). This is dismissed with a few words of disapproval. Nothing has been accomplished by the electrical treatment, and there is no prospect that there ever will be. As we contrast the patient plodder, who by sheer industry and perseverance has won for himself the respect and confidence of the scientific world, with the great Birmingham surgeon, we are reminded that "the race is not to the swift."

A separate chapter is devoted to the broad ligaments, concerning which the author says: "I doubt if there is any other *organ* (*sic*) of the body of so much importance in women." This strong statement is somewhat misleading, as appears later on; its importance is really due to the

organs enveloped by these peritoneal folds and their relations to morbid growths, not to any inherent importance in the so called "ligaments" themselves. On page 228 we read that "hæmatoceles are quite common after all operations involving the broad ligament, and experienced surgeons are quite familiar with them." The writer expresses the opinion that they occur in eighty per cent. of *all* operations and rarely cause serious trouble. "Of course, writers of library papers and irresponsible and inexperienced writers of anonymous reviews cannot be expected to know anything about such occurrences, and their ignorance has to be pardoned." In the face of this magnanimous attitude on the part of the author, we may venture to call attention to the fact that in vaginal hysterectomy (with which we have had some acquaintance outside of the library) the broad ligaments are involved more than in any other pelvic operation, yet resulting hæmatocele is certainly rare. In the voluminous literature of the subject we miss any reference to it. The two tables which conclude this chapter speak for themselves—102 cases of abdominal section for cyst of the broad ligament, with 2 deaths, and 37 successive cases of pelvic abscess treated in the same manner without a fatal result.

Chapter VI., on the anatomy and physiology of the ovary, has been carefully revised and bears ample witness to the active mind and wide research of the author; we believe, however, that it was a mistake to include arrest of development, prolapse, and hernia of the ovary in this chapter, instead of under the chapter on diseases of the gland as in his former monograph.

The title of Chapter VII., which includes 137 pages, is clearly a misnomer. It is headed "The Fallopian Tube and Menstruation," whereas it includes a wide variety of subjects, such as pelvic congestion, salpingitis, oöphoritis, hermaphroditism, etc. It might, with advantage to the reader, have been split up into at least three short chapters, in which it would have been easier for him to find the information, for a clue to which he will often consult in vain the imperfect index (there is no table of contents). The pages on the relation of the tubes to menstruation are exceedingly interesting. Even those who may not entirely agree with Mr. Tait's deductions must admit that he has made out a strong case. We note an important statement on page 312, *apropos* of the discussion at the last meeting of the American Gynecological Society, on the subject of performing laparotomy for the removal of the appendages during menstruation. "It has come to me to be a rule," he says, "to select the immediate approach of menstruation as the time for operation in many cases, and to be in others quite indifferent on the subject." Considering its high source this must be accepted *ex cathedra*.

Among diseases of the tubes we miss any reference to neoplasms, and especially to tuberculous salpingitis, of which a laparotomist of Mr. Tait's unique experience must certainly have met with several examples. Diseases of the tubes and ovaries are mixed up in the same confusing manner as in the former book. In discussing gonorrhœal salpingitis the author takes occasion (on page 371) to scout at the "zymotic theory of inflammation, which is now the fashionable craze." His admission in the next sentence that he has been content to obtain his knowledge of bacteriology second-hand decidedly weakens the force of the criticism. We agree thoroughly with his remark on the following page that "abuse is not criticism." Hence we are not willing to undervalue the impor-

tance of the gonococcus on the strength of Mr. Tait's sweeping denial of its existence.

At the top of page 364 there is a sentence *in italics*, which we quote entire, on account of its importance, viz.: "I am now quite certain that in the hands of a competent operator there are no adhesions of the uterine appendages which cannot be overcome, and no case ought to be left unfinished. Incomplete operations are the opprobrium of abdominal surgery, and operators ought to be more discredited by them than by anything else." This is mischievous doctrine. No one will deny that it may apply to such an experienced operator as Mr. Tait, but among his enthusiastic followers in this country it is calculated to do great harm. We have seen its results in the operating room, where men who disliked to have it said that they abandoned an operation, have recklessly torn out adherent appendages after the manner of the post-mortem table, to which the patient was speedily transferred. Very few of us can venture to imitate Mr. Tait in this respect, call this hesitation, "lack of experience" or by any other term of reproach.

The sentence which follows the one quoted is no less radical in its bearing. We are told that

"the retroverted and adherent uterus is a mere incident in the case and should be left alone." "Remove the appendages and arrest menstruation, and the uterus will cease to give trouble. The uterine adhesions are very liable to bleed, and to arrest this bleeding is a very difficult matter. In the few cases in which I have ventured to meddle with these I have had reason to regret my interference."

This is directly opposed to the every-day experience of those who have followed up the after-history of their patients, and we confess that we are unable to reconcile the difference of opinion, unless it is that Mr. Tait does not keep his patients under personal observation after they have been discharged as cured.

With the author's views on ectopic gestation we are already familiar, so that it will be sufficient to say that the concluding chapter on this subject is exhaustive and contains much that is interesting and suggestive. Even those who differ from him cannot withhold their admiration at the cogency and ingenuity of his arguments, based as they are upon his wonderful record in this line of work.

We have presented merely an outline of this volume, devoting less attention to the portion which deals with abdominal surgery, although it is the most important, because the reader is already more or less familiar with it. Many of the author's well-known views have been elaborated, especially those on tubal pathology. Mr. Tait never writes anything that does not command attention by reason of the originality of his ideas and the clear and forcible manner in which they are expressed. This is eminently true of the present work. Germs of truth are thickly scattered throughout it; single happily worded sentences express what another writer would have expanded into pages. Useful hints on the technique of surgical operations, ingenious theories on pathology, daring innovations on long-established rules—these succeed one another with a bewildering rapidity. The very want of coherence in Mr. Tait's book is typical of his phenomenal mental activity; his ideas crowd upon one another, and are apparently jotted down pretty much in the order in which they present themselves.



The style is terse and forcible. There is no element of doubt in the author's statement of facts and theories; if he thinks that they are so, they *are*, and that settles it. We have already referred to the personalities with which many pages bristle and which are out of place in a scientific treatise. Mr. Tait is too old a reformer to desire any longer the adoration of the young and inexperienced alone. His position has long been assured; it is hardly possible for him to add to his great reputation as a daring and original surgeon. Few reformers have ever enjoyed the present reward of their labors in such full measure as he; he can, therefore, well afford to be more temperate in his exultation and more tolerant of those who, while they admire his work, still claim the right to point out its flaws. But, with all his faults of omission and commission as an author, we cannot repress our admiration for the restless genius of the great surgeon, who can say with the lonely exile of St. Helena: "They may call me what they please, they cannot prevent me from being myself."

H. C. C.

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ORIGINAL CONTRIBUTIONS TO OPHTHALMIC SURGERY. By J. R. WOLFE, M.D., F.R.C.S.E., Professor of Ophthalmology in St. Mungo's College; Senior Surgeon to the Glasgow Ophthalmic Institution. With illustrations. 8vo., pp. 97. London: J. & A. Churchill, 1890.

It happens not infrequently that an instrument, a procedure, a doctrine, put forth with honest enthusiasm, accepted by the profession, and still widely popular, has meanwhile been mainly or entirely discarded by its author. So when a surgeon of ripe experience culls from his earlier work, as has here been done by Dr. Wolfe, that which he regards as worthy of more attention than has yet been bestowed upon it, the selections he makes are not without their especial interest. Then there is the probability that larger experience, and the benefit of the criticism received from his colleagues, have added materially to the value of the views expressed.

The method of cataract extraction here advocated by Dr. Wolfe is quite different from any now popular, and in spite of the satisfactory results yielded in his hands does not promise to come into general favor. He does a small iridectomy some days before the extraction, but the chief peculiarity of the operation is that the section of the cornea, usually made downward, is at first but partial, a bridge of tissue being left standing until the capsule of the lens has been freely lacerated, and the lens fairly liberated. Then the incision is completed with a knife having a blunt point. The Daviel method, now returning to professional favor under the title "simple extraction," and the earlier Graefe incisions are sharply, and we think not quite fairly, criticised.

Incidentally, it appears that the author does not think much of cocaine, and uses it little, if at all, believing that its decided influence over the nutrition of the part must be harmful and a source of danger.

Wolfe's operation for detached retina has found more favor, though chiefly outside of Great Britain. It consists in dissecting down to the sclerotic, opposite the point where, by careful ophthalmoscopic study, the sub-retinal fluid has been found inclined to settle, incising the

sclera obliquely with a sclerotome, and keeping the incision open with a spatula until the fluid has had opportunity to drain away. Then the eyes are closed, and the patient kept on his back for two or three days. In reporting the successful cases here introduced, we notice a disposition to tell about different things the patient was enabled to see, or do, but a general avoidance of any statement of the acuteness of vision in terms of the standards in common use among ophthalmologists. Such a disposition may mark the tardiness of an elderly man in adopting later methods of expression, but he who exhibits it lays himself open to the suspicion that he is trying to magnify unduly the success of his treatment.

The author's work in plastic surgery in demonstrating the feasibility of transplanting large areas of skin, and of the rabbit's conjunctiva, without pedicle, have received such general recognition both at home and abroad that no special mention of it here is necessary,

The collection concludes with the account of a case of tuberculosis starting in the iris and ciliary region after local injury. The illustrations include diagrams explanatory of operative procedures, and pictures of patients who have undergone plastic operations. E. J.

A PRACTICAL TREATISE ON ECZEMA AND ITS TREATMENT. By M. J. RAE, M.D., Late Physician to the Blackburn and East Lancashire Infirmary, etc. 8vo., pp. 190. London: J. & A. Churchill, 1889.

It is stated that the volume has been prepared with the object of placing before the medical practitioner a full, yet succinct, history and description of the disease and its treatment, the work being written from the standpoint of a physician rather than that of a specialist. From a perusal of the pages, moreover, it is evident that the author's experience with the disease has not been a very large one, for we are struck by the absence of personal observations, such as one would expect to find in a monograph. The plan has rather been to collect and put forth the views of other writers. It must be accepted, therefore, as a compilation. A claim for originality can hardly be set up.

The essay does not go very deeply into the subject, but as far as it goes it is interesting. A variety of views on all points connected with the disease are presented, references, as a rule, being omitted. Some of the descriptions seem to us as being inaccurate or loose, as, for example, where in considering eczema ani it is stated that "deep fissures form around the anus, whence exudes an abundant, irritating discharge." Is the discharge here ever abundant? On another page: "High temperature producing violent perspiration causes eczema, forming a variety sometimes called miliaria rubra." Miliaria is usually regarded as distinct from eczema. Such statements, therefore, so different from the usually accepted views, call, we think, for some explanation.

In the matter of treatment the author is an enthusiast, for not only do we find a copious list of remedies, but many of them are endorsed in terms of unqualified approval, without, however, as a rule, giving the indications for their judicious employment. Some of the older English writers, such as Plumbe, Neligan, and Burgess are often quoted, while

the English authors and those of other countries of to-day are only meagrely referred to.

We meet with surprises not infrequently in the chapter on therapeutics, as where we read that mercury is "very efficacious in chronic and obstinate forms of the affection." In the same manner numerous other remedies and combinations are more or less highly lauded. With such an extensive armamentarium to draw upon, the beginner might feel that no difficulty ought to arise in curing any case of this disease. We miss throughout this chapter a guiding hand to inform us when to use and when not to use the remedies, and in what strength to employ them in the several stages of the disease. The knowing how to use the remedies, it must be admitted, is the secret of success in therapeutics. The book is written in an easy, agreeable style, which will win for it many readers; but, as already intimated, it can hardly be regarded as a substantial contribution to our knowledge of eczema.

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PRACTICAL GUIDE TO THE DEMONSTRATION OF BACTERIA IN ANIMAL TISSUES. (FOR THE USE OF STUDENTS AND PRACTITIONERS.) By DR. H. KÜHNE, Wiesbaden. TRANSLATED WITH THE CONSENT OF THE AUTHOR AND EDITED BY VINCENT DORMER HARRIS, M.D. Lond., F.R.C.P., Demonstrator of Physiology at St. Bartholomew's Hospital; Physician to the City of London Hospital for Diseases of the Chest, Victoria Park, etc., etc. Small 8vo., pp. viii., 53. London: Baillière, Tindall & Cox, 1890.

A manual for beginners should, we believe, contain the fundamental principles of the subject treated, so clearly expounded and so logically arranged as to insure their remembrance by the student. This we sadly miss in the little book before us. We look for a concise statement of the commonly employed methods of staining bacteria in tissues, and find instead only a rambling account of others which the author would substitute, more intricate, most of them admittedly requiring skilful manipulation to obtain the desired result.

Notwithstanding these defects, the book will be found to contain a number of useful hints for the more advanced worker desirous of preparing handsome specimens for purposes of demonstration, etc. Among these may be mentioned the use of aniline oil and of an alcoholic solution of fluorescein as differentiating agents for tissues so delicate as to be easily injured by acids. Again, it is advised in cases where lengthy immersion of sections in alcohol or aniline oil is necessary for dehydration, to diminish the decolorizing action of these liquids by the addition of a little of the dye.

The method most highly recommended for general work, and for which the claim is made that it will stain nearly every species of bacteria except the *bacillus tuberculosis*, is as follows: The sections are immersed for thirty minutes in carbolic methylene-blue (methylene-blue, 1.5 gm.; absolute alcohol, 10 c.c.; carbolic acid, five per cent. solution, 100 c.c.), they are then washed and passed through acidulated water (hydrochloric acid, 10 drops; water, 500 c.c.) into lithia water (saturated solution of lithium carbonate, 6 to 8 drops; water, 10 c.c.). After remaining in

this for a few minutes they are washed in water and passed into alcohol. The dehydration and differentiation are continued in aniline oil to which a little methylene-blue has been added, then in aniline oil alone, then in oil of cedar, bergamot or cloves, and finally in xylol, preparatory to mounting in balsam. A number of modifications of this method are suggested by which contrast stains may be obtained, but for these, and for the author's modifications of Gram's method and of the stain for tubercle bacilli, the reader is referred to the book itself. J. S. E.

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A MANUAL OF OBSTETRICS. By A. F. A. KING, A.M., M.D. 12mo., pp. 431. Philadelphia: Lea Brothers & Co., 1889.

THE fourth edition of this manual appears revised and enlarged by the addition of chapters upon inter-current diseases of pregnancy and resuscitation of stillborn children. In subject matter, illustrations, and general arrangement, the manual is the best of its kind published in this country. It is up to the proven points of obstetrics, with the exception of a few unimportant and disputed theories. It will be a great gain when obstetric nomenclature is simplified as much as possible, and when the number of positions to be memorized is reduced to the smallest number, giving room in such a manual for more important matter. The success of the manual is an encouraging protest against the many quiz compends, essentials, and other primers and books for the easy learning of obstetrics which are much too common and too extensively used in the colleges; the ambition of the quiz masters to cram students for examination leads to a parrot-like process of memorizing which must leave the student deficient in well-digested knowledge when brought to grapple with practical life.

Dr. King's *Manual* is an excellent type of the class of books which a student can consult to advantage while attending lectures, and which that now classical type of medical man, "the busy practitioner," can use to refresh his over-crowded memory at convenient intervals.

The wholesale manufacture of doctors by medical colleges places upon the market annually what was aptly described in a recent medical address as "a machine-made article," and one of the implements extensively employed in turning out this product is the quiz primer. While the ground-work of obstetrics may be stated simply and with such brevity that any man of ordinary intelligence can easily apprehend it, any thorough and satisfactory knowledge of the subject must be gained by constant reference to at least one logically written and thoroughly prepared treatise. That a reaction in the minds of thoughtful men is taking place upon this evil of our system of education, is exemplified by a recent action of one of our obstetricians, who framed his examination papers in such a manner that the answers could not be obtained from a quiz compend.

E. P. D.

# PROGRESS OF MEDICAL SCIENCE.

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## THERAPEUTICS.

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UNDER THE CHARGE OF

FRANCIS H. WILLIAMS, M.D.,  
ASSISTANT PROFESSOR OF THERAPEUTICS IN HARVARD UNIVERSITY.

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### ACTION OF CAFFEINE.

In *La Médecine Moderne* of March 14, 1890, there appears an excellent article by SÉE and LAPICQUE on the action of caffeine, including a discussion of the action of other substances acting in a somewhat similar manner. Their argument has been epitomized as follows: Caffeine and the entire series of medicaments once called *medicaments d'épargne*, are entirely devoid of any property of preserving the organism in its integrity during inanition. They really augment the waste of carbon, and do not restrain the other organic losses. The active principle of tea and coffee does not produce its effects by reason of the nitrogen which it contains, and by breaking up in the system, as Gubler imagined; it passes unaltered in the urine.

How does it happen that coffee both augments denutrition and prevents the untoward effects of food-deprivation? Bear in mind that it is one thing to resist inanition a long time while keeping absolutely at rest, and another to perform physical and mental work when on short rations for a day or two. It is the latter condition which is now under consideration.

The condition for resisting inanition is to reduce the losses to the minimum, if one is obliged to pass a certain period of time without food, but in inaction; here, if ever, something that will "spare the tissues" is needed. Cold-blooded animals, whose activity is much less than that of warm-blooded animals, resist inanition ten times better than the latter. Warm-blooded animals that hibernate realize in that state a condition where the resistance to inanition is enormous, and where waste-restraining is at its maximum. The ideal condition of tissue-sparing, then, is one of absolute immobility with profound sleep, in which the activity of the muscles and special senses is suppressed while respiration and circulation are slowed; here there is little expenditure and no work.

Now, with caffeine, coca, and the like, we obtain just the opposite—that

is, a condition suitable for intense work; but we obtain this only at the expense of much tissue-waste. The law of conservation of energy applies here as everywhere. The animal machine can work only by consuming combustibles, and it is precisely by energizing the combustions of the economy that caffeine enables muscular work to be performed during fasting. It is in this respect that caffeine takes the place of food; but there is only one point of view from which it can be said to have any such substitutional action, namely, that of a general tonic excitation produced by its ingestion. And even here the action is not different from that immediately experienced by the ingestion of food, as it is easy to show.

Take the case of a man, for instance, who is doing some kind of work as walking. At the end of a certain time he experiences the sensation of hunger and fatigue—that is, along with certain special sensations referred to the stomach, he experiences a general enfeeblement; his legs tire; it now requires an effort to walk, which he did before automatically, almost unconsciously. The heart's action becomes slower, the pulse more feeble. We will now suppose that he eats something. As soon as a small quantity of food is introduced into his stomach the malaise and fatigue disappear; he again finds himself in trim for work; the heart is reinvigorated, the respirations have greater amplitude. This sense of restoration is almost instantaneous, following the ingestion of the very first mouthful, especially if the food is warm.

Let us analyze the case and see what we find. When hunger is felt, inhibiting work, it is not because the substances which furnish the energy necessary for this work—fat, glycogen, etc.—are exhausted, nor have the aliments just ingested renewed these reserves. In fact, it is the very ingestion of aliments which has revived the failing forces; the effect is produced, not only before these aliments are absorbed, but even before they have begun to be attacked by the gastric juice. We have, then, to do here with a purely nervous phenomenon. We know not what part to assign to peripheral excitations consisting in buccal, gustative, tactile, and stomachal sensations acting on the nerve-centres to raise their tone, and what to assign to the immediate absorption of a very small portion of the food immediately soluble and absorbable, such as dextrine, sugar, peptones, etc.; both processes are probably factors in the renewal so speedily felt. It cannot be the reconstitution of the reserves which enables the individual refreshed to resume his work, as in the case of a locomotive which takes on coal and water. The ingested aliments cannot be utilized till later, but their ingestion enables the organism to utilize immediately the residue of previous reserves.

The cause, in fact, of that enfeeblement, which is an integral part of the sensation of hunger, is that the organism, by an instinctive adaptation, of itself restrains its activity and compels repose, in order to diminish the waste of its substance and better to defend its integrity against inanition.

The researches of physiologists, in fact, have shown that from the very commencement of inanition, while the reserves are being drawn upon, the rate of exchanges suffers diminution; the temperature falls several tenths; urea and carbonic acid are excreted in lessened quantity. The mechanism by which this inhibition of chemical actions is produced, consists evidently in a sort of cerebral torpor. As it is the nervous system which, by its activity, regulates that of the organism in general, and, moreover, as this is much

more sensitive than any other system to the variations of the internal or external environment, the nervous centres are the first to feel the effects of denutrition and of blood-impooverishment, and unless some cause of excitation supervenes, by nervous inhibition alone the organism is brought to that state of atony where effort is impossible, but which is favorable to the long resistance of inanition. The latter may last till all the reserves are consumed, till the nervous substance itself undergoes denutrition, and starvation ends the scene; but at the beginning of the period of inanition, we see the organism realize of itself that sparing of the tissue which some would ascribe to caffeine as one of its properties; it is, in fact, this tissue-sparing which is the obstacle to labor, and caffeine and its congeners do good and restore activity only by increasing the consumption of reserves and the denutritive processes generally.

From the above explanation, it will be seen that the theory is that caffeine, when taken for its physiological effects, and in the manner indicated by the French experimenters, whose experiments on man are set forth in the article above mentioned, does not act differently from ordinary food, the ingestion of which immediately rallies the languishing nervous system, and by its intermediation the muscles, causing the latter to utilize for work the reserves stored up in their tissues. There can be no doubt that this is the way in which the natives of Peru derive benefit from coca when performing their exhausting labors. But any supposition that the use of coca and other stimulants prevents denutrition is a glaring fallacy—the contrary is the truth; while, on the other hand, foods, while producing an immediate stimulant effect like that of coca and caffeine, are the real restrainers of denutrition by furnishing materials for the repair of waste.—*Boston Medical and Surgical Journal*, April 17, 1890.

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#### THE FATAL AFTER-ACTION OF CHLOROFORM.

A new phase of the chloroform question is touched upon in a paper by OSTERTAG published in the *Deutsche medizinale Zeitung* of January 16, 1890. In the literature of the fatal cases of the administration of chloroform as an anæsthetic, a few are on record where death was only produced a number of hours after the production of the narcosis. Thus Langenbeck published in 1850 a case of death after extirpation of the shoulder, which occurred seventeen hours after the operation. Berend also published cases in which it did not occur until sixty hours after the production of narcosis. Ungar and Strassmann called attention to the fact that chloroform inhalation in certain instances had produced fatty degeneration of internal organs, especially of the heart and liver, but without producing any detectable alteration in the blood. These results seem to have attracted but little notice, though it is evident that they should draw attention to a possible phase of chloroform death which is worthy of careful study.

Ostertag's experiments were made upon various animals, and the administration of chloroform was continued for hours. In apparently healthy rabbits the inhalation of chloroform was followed by marked fatty infiltration of the liver and fatty degeneration of the myocardium, of the muscular part of the diaphragm, as well as of the kidneys and liver. In cats the fatty deposits were especially confined to the epithelium of the liver and kidneys, while the

other organs, especially the heart, were free. In dogs there was a slight fatty infiltration of the liver, and a great accumulation of oil globules in the urinary canals. The results show that the effects of chloroform differ very considerably in different groups of animals.

Attention is likewise called to the alterations produced in the blood as the result of the action of chloroform, and he claims that a great number of the deaths are due to disturbance in the respiratory functions of the red blood-corpuscles, although a number of factors are likewise concerned in the production of this result. The author finds that fatty metamorphosis of the cardiac muscle is one of the causes of death. He claims that it is quite conceivable that the preliminary stages of fatty degeneration, even although not having passed to a complete degeneration, may be concerned in the reduction of the functional activity of the heart. Fatty degeneration of the skeletal muscles, which was especially noted in the diaphragm, may likewise prove an important factor in the disturbance of respiration; while, of course, the depressing action on the respiratory centre is likewise of prime importance. Further than this, the interference of the respiration leads to the accumulation of carbonic dioxide in the blood, and this may act as a depressant on the heart's muscle. Of course it will not do to apply these results, without further study, directly to man, for it is quite conceivable that there may be as marked differences between the action of chloroform on man and on the lower animals, as were noted in the different groups of animals experimented upon by the author.—*Therapeutic Gazette*, March, 1890.

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#### ANALGESIC ACTION OF EXALGINE.

The analgesic action of exalgine formed the subject of a lecture recently delivered by DR. T. R. FRASER at the Royal Infirmary, Edinburgh. He prefaces his remarks, which, however, refer chiefly to the clinical side of this subject, by a few words concerning the rationale of the analgesic action of recent derivatives of the aromatic group—the so-called antipyretics. He believes that their action differs from that of opium, belladonna, aconite, chloral, and the anæsthetics, in that the latter affect the whole or an extensive part of the nervous system, while the former appear to produce a condition similar or analogous to one observed in certain nervous affections, where we find analgesia without any loss of tactile or thermal sensibility, a condition which pathologists attribute to lesions involving only a small part of the nervous apparatus.

All other compounds of this group, which have been studied clinically, possess antipyretic, diaphoretic, and antiseptic properties, which preponderate over their analgesic action. In exalgine or methyl-acetanilide, however, the analgesic action predominates, while the antithermic effects can only be obtained by the administration of large quantities of the drug bordering on the region of the toxic dose.

The writer gives some carefully compiled details from his own clinical observations, which, unfortunately, must be omitted for want of space. Exalgine was given to twenty-one patients suffering from sixteen different forms of disease. The usual dose was half a grain, although one grain was



not infrequently given, and once or twice four grains. It was administered in all eighty-eight times, as may be seen from the following table :

	Number of observations.	Number successful.	Number unsuccessful or doubtful.
Facial neuralgia . . . . .	8	8	...
Sciatica . . . . .	10	9	1
Herpetic neuralgia . . . . .	10	9	1
Neuralgia of arm in hemiplegia . . . . .	11	11	...
Locomotor ataxia, first case . . . . .	2	2	...
Locomotor ataxia, second case . . . . .	1	1	...
Toothache, first case . . . . .	2	2	...
Toothache, second case . . . . .	2	2	...
Toothache, third case . . . . .	2	2	...
Toothache, fourth case . . . . .	2	...	2
Cardiac angina . . . . .	2	2	...
Pleuritic pain, first case . . . . .	1	...	1
Pleuritic pain, second case . . . . .	4	4	...
Rheumatic synovitis . . . . .	4	4	...
Blennorrhagic rheumatism . . . . .	2	1	1
Gastric cancer . . . . .	2	2	...
Gastric ulcer, cicatrized . . . . .	4	2	2
Cancer of abdomen . . . . .	10	6	4
Cancer of liver . . . . .	2	...	2
Aneurism of aorta . . . . .	4	...	4
Lumbar abscess . . . . .	3	...	3
	88	67	21

The table shows that 88 separate administrations of exalgine were made ; that in 67 of them pain was relieved, while in 21 no distinct benefit was gained. The condition of some of the patients, however, was not one in which the existing pain was likely to be alleviated by any substance which did not produce general narcotism ; as, for example, in the last three cases in the table, cancer of the liver, aneurism of the aorta with erosion of vertebræ, and lumbar abscess. By far the best results were obtained in neuralgia, and if the separate observations of nervous affections (toothache included) be grouped together (in the table between facial neuralgia and angina), we find that in 52 administrations 48 were successful and only 4 unsuccessful. This is a very good result, even allowing for the many fallacies which must enter into statistics of this sort, no unpleasant disturbances or inconveniences having been recorded in this series of clinical observations.—*British Medical Journal*, February 15, 1890.

#### THE USE AND ACTION OF ACIDUM TRICHLORACETICUM.

As far as DR. H. A. EHLMANN, of New York, an assistant of Professor Jurasz's out-patient throat clinic at Heidelberg, has been able to ascertain, the medical profession has only been acquainted with the local use of this corrosive substance through some remarks made by Dr. von Stein, of Moscow, at the last International Congress of Laryngologists in Paris.

This acid, whose formula is  $\text{CCl}_3\text{COOH}$ , occurs in colorless, transparent, rhomboidal crystals, with a slightly pungent smell, and a corroding action

to the tongue; they are freely soluble in water and alcohol, melt at 125.6° F. and boil at 383° F., giving off an aromatic-smelling steam. Owing to their extremely hygroscopic nature they are prepared in small bottles hermetically sealed; for, after opening one of these, only about half of the crystals can be applied as such before the remainder deliquesce. To make an application, the writer picks a crystal up on the end of an ordinary silver probe, and drops it on the required spot; with a little practice this manipulation becomes easy. A slight cup-shaped depression in the bulb of an ordinary probe also makes a good carrier. In the mouth and throat local anæsthesia is not needed; in the nose the application should be preceded by spraying in a little ten per cent. cocaine solution.

After applying this remedy to a mucous membrane, a smooth, dry, ivory-colored eschar forms, which adheres closely, does not spread, produces no offensive smell, does not set up inflammatory processes in its vicinity, and is painless, except for a sense of burning lasting about one minute. It falls off in from two to six days, leaving the surface beneath intact, so that a fresh application can be made if needed. Its indications are the same as for chromic acid.

The writer also uses a one per cent. solution of this substance in glycerine, to which he had previously added one-half of one per cent. of iodine and some iodide of potash. This was applied to the throat with a brush or swab, for diffuse chronic pharyngitis, pharyngitis sicca, and follicular tonsillitis. Encouraging results were obtained in all his cases, excepting two patients treated by this method for ozæna.—*Münchener medicin. Wochenschrift*, March 4, 1890.

#### EXALGIN AS AN ANTIPYRETIC AND ANTINEURALGIC.

DR. HEINZ, of Breslau, has tried exalgin as an antipyretic in erysipelas, articular rheumatism, and abdominal typhus without getting any antipyretic effects, which is peculiar on account of its relation to antifebrin. The remedy was also experimented with in hemicrania, articular rheumatism, and influenza with regard to its anodyne action. Doses of 3 to 3½ grains were inactive, or had only a slight effect. A pronounced action was only seen from 6 to 7½ grains (in adults). Cyanosis was never observed. In a case of migraine 6 grains caused an aggravation of the symptoms with roaring in the ears and an increase of the pain. The author himself twice observed that 7½ grains produced in his own case roaring in the ears and a feeling of exhilaration. In general, exalgin as an anodyne has an action similar to that of antifebrin, phenacetin, or antipyrine. In influenza, as well as in the other diseases, it has no advantage over antifebrin; however, it does not cause cyanosis, and where an anodyne without antipyrine is desired, it may be substituted for the last. It cannot be used for any length of time on account of its destructive action upon the blood; doses above 7½ grains should be avoided.—*Berlin. klinische Wochenschrift*, March 17, 1890.

#### METHACETIN AS AN ANTIPYRETIC AND ANTINEURALGIC.

DR. C. SEIDLER has experimented with methacetin as an antipyretic in tuberculosis and febrile conditions; in acute articular rheumatism as an

antipyretic and antineuralgic. In moderate fever, doses of  $\frac{1}{2}$  to  $\frac{3}{4}$  grain were sufficient to reduce the temperature to the normal; with higher temperature larger doses ( $\frac{3}{4}$  to 1 grain) were necessary. The action of the remedy was prompt on account of its easy solubility, and in one-half hour the thermometer would show a fall in the temperature. This fall was gradual and reached the minimum in about three hours and lasted about one hour. The rise which followed this was relatively more rapid than the fall. A rigor may quite frequently introduce the rapid rise. The pulse also sinks with the temperature, but the beats become stronger and the pulse-wave fuller. In two cases of acute rheumatism, one with quite high fever and the other with a swelling of the joints, the remedy acted promptly and surely, the pain decreasing on the first day, and on the third day the pain, fever, and swelling had disappeared; there was no relapse. It acted well also in the subacute cases. As an antineuralgic it was less efficacious, and inferior to other remedies.

Dr. Heinz, of Breslau, also experimented with methacetin as an antipyretic. In general, quite large doses were tolerated. In typhus abdominalis the remedy reduced the temperature about  $3^{\circ}$  C., the fall being often accompanied by profuse sweating. The rise took place gradually; rigors were never observed. A longer period of apyrexia may be maintained by repeating the remedy in smaller doses when the temperature begins to ascend. Doses of 15 grains caused no serious, disagreeable symptoms; the temperature, however, sinking somewhat under the normal. In a few cases this was observed to occur from  $7\frac{1}{2}$  grs. In adults this dose is fully large enough as an antipyretic. The remedy was also used in articular rheumatism, in migraine, and in influenza. In the former affection the remedy was efficacious in the few cases observed. The dose as an anodyne is double that as an antipyretic. Compared with phenacetin, the dose is one-half as large.—*Berlin. klinische Wochenschrift*, April 14 and March 17, 1890.

#### ICHTHYOL IN DISEASES OF WOMEN.

The local action of ichthyol upon inflammation and pain led Dr. H. W. FREUND to use the remedy in the gynecological clinic of the University of Strasburg. It was used in chronic parametritis, chronic and subacute perimetritis, with exudations and formation of cicatricial bands; in vaginal cicatrices, as well as in those of the vaginal portion of the uterus; in chronic metritis, in inflammations of the ovaries, tubes, and surrounding tissues; in erosions of the cervix, and in pruritus of the external genitals, with astonishingly rapid and complete results. The remedy was given at the same time both externally and internally. For internal administration a pill was found convenient, one and one-half grain, in the beginning, three times daily; later this dose was doubled. Externally the following formula was employed:

R.—Ammon. sulfo-ichthyol . . . . .  $\mathfrak{z}\mathfrak{j}\mathfrak{i}$ .  
Glycerin . . . . . fl.  $\mathfrak{z}\mathfrak{i}\mathfrak{j}$ .

S.—To be applied upon vaginal tampons.

It was also used as an ointment—lanolin and ichthyol in equal parts; or, as a soap, combined with green soap, ammon. sulfo-ichthyolic, drachms 2,

with *sapo. virid.*, ounces 3. In these two latter forms it is applied and rubbed on to the abdominal walls. Finally, it is also given as a rectal suppository, 1 gr. of ichthyol to 2 of butter of cocoa. The odor may be disguised by cumarin. Cervical erosions were induced to heal by applying the pure ichthyol directly to the lesion. In pruritus the unguent or a 10 per cent. solution in water may be used locally. The internal administration of the remedy influences the general condition, increasing the appetite and regulating the digestion and action of the bowels. It had no perceptible action upon the urinary excretion. The remedy was well tolerated, and no secondary action was noticed.

The results of the intravaginal applications were astonishing, its absorbent action being most prominent. In two cases thick cicatricial bands due to caustics disappeared in a few days. Parametritic cicatrices became tractable, thin, and gave way to a great extent. A quite extensive exudate in Douglas's cul-de-sac, with slight rises of temperature, disappeared in sixteen days. A case of a patient suffering from the consequences of gonorrhœic salpingitis is also mentioned: the tubes were hard, large, and immovable; had been subjected to the usual treatment without success; the energetic action of ichthyol produced a cure within a few days, a copious mucous discharge pouring from the genitals. A troublesome intestinal catarrh was also removed in the same case by means of ichthyol suppositories. In painful conditions the remedy acted as a sedative, especially in inflammation of the cul-de-sac of Douglas and perimetritis with tenesmus ani. It had no disagreeable action on the skin or mucous membrane. When there is great sensitiveness a chloral-glycerin (2 to 5 per cent.) may precede the ichthyol treatment.—*Berliner klinische Wochenschrift*, March 17, 1890.

#### INTRAMUSCULAR INJECTIONS OF MERCURY IN THE TREATMENT OF SYPHILIS.

In the *Archiv für Dermatologie und Syphilis*, 1889, DR. WATRASZEWSKI discusses the effect of the injection of insoluble mercurial preparations into the muscles.

The mercurial salts, recommended for their parasiticide effect on theoretical grounds, have not shown any advantage, and practically the choice lies between calomel, the yellow oxide of mercury, and the gray oil of mercury.

With respect to calomel, while it is undoubtedly very effectual in the treatment of syphilis, it has proved dangerous to the patient, Kuneberg having collected seven fatal cases; but the author found that dangerous symptoms could to a great extent be avoided by reducing the dose originally suggested by Smirnoff from three grains to not more than two-thirds of a grain, and this, too, without sacrificing its therapeutic efficacy. He regards the gray oil as still more dangerous, instancing Kaposi's fatal case and Hallopeau's case of severe stomatitis and several cases of fat embolisms in the lungs which are on record. A decided preference is therefore to be given to the yellow oxide of mercury, but in the reduced dose of two-thirds of a grain to one grain. These doses he has given thousands of times without ill effect, while the doses originally recommended, of from two grains to two grains and a half, have produced serious symptoms, such as adynamia, diarrhœa, stomatitis, etc.

The choice of the vehicle for injection is not unimportant. Those hitherto used have been generally glycerin, olive, almond, or paraffin oils, or gum-arabic mucilage. The author has made experiments on this point, injecting these vehicles alone into the jugular veins of cats, and found that serious embolic pneumonia was excited by the oily fluids, while the mucilage only produced scattered embolic foci of small size, which were absorbed without subsequent reaction of any importance.

These experiments have a practical bearing, for in intramuscular injections a vein is occasionally pierced, and serious pneumonia has ensued.

Glycerin excites local irritation, and is therefore unsuitable. Dr. Watraszewski therefore finally decides that mucilage (gum arabic 1 part, water 120 parts) is the best, as it combines all the essentials of a vehicle, viz.: 1. It can be made of the proper consistence to hold the powder in suspension. 2. It has no local irritating effect. 3. It does not decompose the mercurial salt. 4. It excites no general disturbance.—*Lancet*, March 8, 1890.

#### USES OF CANNABIS INDICA.

The difficulty of obtaining reliable preparations of cannabis indica is one of the chief obstacles to its use. DR. REYNOLDS has had exceptional opportunities to get good cannabis indica, and the results of his administration of the drug during a number of years lead him to believe that when pure and carefully administered it is one of the most valuable remedies we possess.

Some of its most markedly valuable results are to be found in curious conditions of the mind. For example, in senile insomnia with wandering; where an elderly person, probably with brain softening in the "delirium form," is fidgety at night, goes to bed, gets up again, thinks he has some appointment to keep, and must dress himself and go out to keep it; but is quite rational during the day with its stimuli of real occupations. In this class of cases nothing is comparable in utility to a moderate dose of Indian hemp; one-quarter to one-third of a grain of the extract, given at night. It has been absolutely successful for months, and, indeed, years, without any increase of the dose. In alcoholic delirium it is very uncertain, in melancholia it is sometimes of service, in mania it is worse than useless, either in the chronic or in the acute form. In the occasional night restlessness of patients with general paralysis it has proved of eminent utility.

In almost all painful maladies, like neuralgias and migraine, it is the most useful of drugs. The lightning pains of ataxic patients, and the multiform miseries of tingling, formication, and numbness, so common in the limbs of gouty people, are relieved by it. On the other hand, it has proved useless in sciatica, myodynia, gastrodynia, and enteralgia.

It is, of course, desirable that the drug should always be obtained from the same source, and that a minimum dose should be given to begin with, and that the dose should be very gradually and cautiously increased. Toxic effects were caused by one-fourth but never by one-fifth of a grain of the extract, therefore one-fifth is a good beginning dose for an adult, one-tenth of a grain for a child. The best form is the tincture, in drops, on a small piece of sugar or bread; if given in a mixture it is apt to separate and give uneven doses. Pills often become hard and insoluble, and their strength cannot be

so readily and so gradually increased. For adults, where a gradually increasing dose is required, a tincture with a strength of one grain of the extract in ten drops of the tincture is useful. Two drops of such a tincture may be used, repeated in not less than four to six hours, and gradually increased by one drop every third or fourth day, until relief is obtained or the drug is proved to be useless.—*Lancet*, March 22, 1890.

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#### HYDRASTININE IN UTERINE HEMORRHAGE.

In the *Therapeutische Monatshefte* for January there appeared an interesting paper by DR. EDMUND FALK on the use of hydrastinine in uterine hemorrhage. The *hydrastis canadensis* has been employed for a long time, especially in America, as a remedial agent. Its active principle, hydrastin, consists of white prismatic crystals, somewhat resembling strychnine in appearance, insoluble in water, but soluble in alcohol, chloroform, and ether. Hydrastin, when oxidized, is decomposed into hydrastinine and opianic acid. Hydrastinine is very sparingly soluble in warm water, but it unites with acids forming soluble salts. Dr. Falk experimented with the hydrochlorate on account of its easy solubility, employing subcutaneously a ten per cent. solution. He contrasted the effects of hydrastin and hydrastinine on animals, and found that the former caused paralysis of the heart, but the latter acted as a cardiac stimulant, and produced strong contractions of the smaller bloodvessels. These features indicated its therapeutical importance, and led him to employ it in cases of endometritic and uterine fibroid tumors, in which excessive bleeding was a prominent symptom. He found it more efficient in restraining hemorrhage than ergotine.—*Lancet*, March 29, 1890.

DR. FALK has made repeated demonstrations with hydrastinine, and suggests it as a remedy in the treatment of uterine hemorrhages, as being much more prompt and sustained in its action than ergotine. Report is made of twenty-six cases systematically and successfully treated with it. The twenty-six patients received in all four hundred injections of hydrastinine hydrochloride in the form of a solution varying from five to ten per cent. There was no noticeable irritation following these injections at any time. The patients were unanimous as to the painlessness of the applications and the freedom from that subsequent discomfort which so often arises from the use of ergotin.—*New York Medical Journal*, March 22, 1890.

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#### SULPHONAL FOR EXCESSIVE SWEATING.

DR. SCHMIDT gives, in his inaugural thesis at the University of Würzburg, a review of everything that has been published on the effect of sulphonal. His own experiments are confined to six cases, chiefly of phthisical patients, in which he administered the drug for the relief of nocturnal sweats in doses of seven grains and a half. The result was generally favorable. He concludes that sulphonal is a useful hypnotic in most cases in doses of from fifteen grains to two scruples. It is also successfully administered in the stage of excitement in mental disease. Digestion and circulation are rarely interfered with, but occasionally more or less vertigo or ataxy is observed in consequence. In heart disease the drug has sometimes no effect; while in other

cases, especially those where the compensation is insufficient, the action of the heart is interfered with, and great care has to be used in giving sulphonal to such patients.

In doses of from three grains and a half to seven grains it may be safely used to prevent excessive sweating.—*Lancet*, March 15, 1890.

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AGARICINIC ACID.

Agaricin has for some time been employed in the night-sweats of phthisis. It is now stated that PROFESSOR KAHLER, of Prague, and some other observers, have found a new preparation of this substance—agaricinic acid—very efficacious for the same purpose. A dose of from one-third to three-quarters of a grain was well borne and produced no unpleasant effects, except that the largest of these quantities sometimes caused a slight and transient nausea. As a rule, a pill containing one-seventh of a grain is sufficient. It should be given about six o'clock in the evening.—*Lancet*, April 12, 1890.

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MEDICINE.

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UNDER THE CHARGE OF

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ON INFLUENZA.

EICHHORST (*Correspondenzblatt für schweiz. Aertze*, March 1, 1890, 137), in reviewing the recent epidemic of influenza in Switzerland, refers to the fact that the earliest epidemic of it seen there occurred in 1557, and the latest before the present one in 1864.

As regards the actual number of cases, the statistical reports are manifestly incorrect and far too low. He estimates that at least 40,000 cases occurred in Zurich. The source of the epidemic as regards Zurich cannot be determined, nor can the manner of its spread over the city. He is firmly of the conviction that it is often directly transmissible from person to person, and cites several instances, including his own case and that of others of his family, in proof of this. He admits, however, that cases occur, and he has repeatedly seen such, which seem to prove the opposite of this. Whatever the *materies morbi* may be, it is certainly a poison of astonishing power. As to whether the infection is at first local or through the blood, he has seen instances which seem to show that it at least can be in the latter way.

Regarding the symptoms, he follows as the best Landouzy's division of influenza into a cephalic, a thoracic, and an abdominal form. According to

the author's experience, the especial characteristic of the last epidemic was the evidence of severe involvement of the nervous system; and he reports in detail several cases illustrative of this and of the severity of the nervous sequelæ; such as symmetrical gangrene, localized paralyses, mania, aphasia. Eichhorst further calls attention to the fact that, although most cases are accompanied by fever, yet afebrile cases frequently occur and that these are particularly liable to exhibit severe nervous symptoms.

Individual peculiarities are particularly marked in grippe, and members of the same family often exhibit entirely different course and symptoms. Three autopsies were made on the fatal cases in his clinic. In one there were two small pneumonic foci, the size of a plum, in the left lung, and besides these, nothing except that the Malpighian tufts were excessively hyperæmic. A second case exhibited a bilateral fibrinous inflammation of the lungs, and a third case suffered from enormous *adipositas*. Eichhorst knows of no specifics for the treatment of the disease. Quinine was without effect in most of his cases. Antipyrine or phenacetin or salicylic acid was found useful for the troublesome nervous symptoms.

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#### PULMONARY LESIONS IN INFLUENZA.

KAHLER (*La Sem. Méd.*, 1890, 80) divides into three classes the severe pulmonary alterations which he has observed in influenza. The first consists in abscesses or purulent pleurisy, consecutive or independent. All these cases terminated rapidly in death on the third or fourth days. As abscess and primary purulent pleurisy are of so rare occurrence, it is necessary to suppose some specific cause in these cases; and the appearance of these conditions on the day of the appearance of the influenza, or upon the days succeeding it, proves that we have to do with the action of a virus still unknown, and not with a secondary infection.

The second category consists in what the author designates lobular pneumonia, or mild pleuro-pneumonia. In these cases the influenza, accompanied by bronchitis, follows its ordinary course, but the patient does not convalesce; the pulse and respiration remain frequent, fever persists, and little by little the symptoms of pulmonary infiltration develop, increase, and are only followed by a very slow recovery. These pneumonias are often accompanied by a serous or sero-hemorrhagic pleurisy. The pneumonias observed during the epidemic differed from ordinary pneumonia, in the absence of characteristic sputum, in the defervescence by lysis, and in the character of the fever, which is not so continuous as in ordinary pneumonia.

The third category of lesions is characterized by grave bronchitis, which can often terminate in death, and which is often accompanied by catarrhal pneumonia.

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#### PATHOLOGY OF INFLUENZA.

LEYDEN (*Berliner klin. Wochenschr.*, 1890, No. 10), in an address before the Berlin Clinical Society, reported the case of a woman who had influenza in December and who never seemed to recover from it. Finally, early in January she suffered from persistent vomiting for eight days, and passed cloudy urine and in small amount, and œdema developed. Examination showed the urine



to be hemorrhagic and very highly albuminous, as in acute nephritis; and though her condition improved, she died about the last of January from exhaustion. At the autopsy the kidneys were found in the first stages of Bright's disease, and microscopically exhibited what Klebs has described as glomerulo-nephritis, the most frequent form after acute infectious diseases. He says he has read of just such a case of fatal nephritis after influenza. In the present epidemic he has seen three cases of nephritis, two of them combined with pneumonia and ending fatally, but no autopsy could be obtained in these. The case now described is peculiar in that the nephritis was directly sequent to uncomplicated influenza—an additional proof that influenza, even without complications, is to be considered an infectious disease. Moreover other complications and sequelæ, as disturbances of the heart, sudden collapse, and paralyses and muscular atrophies, have been observed after influenza as after other infectious diseases.

The author is inclined to the view that the disorder is due to a miasmatic infection, but he does not consider the question yet settled.

As regards influenza pneumonia, Leyden calls attention to this as the commonest and most dangerous complication, and to the fact that it exhibits marked peculiarities. Every epidemic of influenza has been accompanied by cases of pneumonia in large numbers. He does not believe that it is merely an accidental complication. Its peculiarities consist in that it seldom begins with chill or is accompanied by severe inflammatory symptoms. Further, the local process is seldom typical—three to four days elapsing before crepitation can be heard in any locality, and that this then sometimes disappears by the next day and develops in another spot. Well-marked dulness is unusual. The sputum is seldom rusty, sometimes absent, and in some cases catarrhal and tinged with blood. In other cases he has observed an abundant serous sputum. Then, too, genuine crises are seldom witnessed; the course of the disease is milder, and it is not so fatal as ordinary pneumonia, except in elderly or debilitated persons. Finally, he remarks the peculiarity that grippe-pneumonia attacks all classes—young and old, well and those already sick with other diseases.

Some of the cases of pneumonia under his observation were undoubtedly genuine pneumonia; others clearly varied greatly in symptoms, which raises the question as to whether different forms of pneumonia may occur with influenza.

Only two autopsies were made on cases dying with pneumonia in his clinic. The course of the disease had not been at all typical, and had had the character of grippal pneumonia. The post-mortem examination showed the presence of a pulmonary infiltration, which, though called "fibrinous pneumonia," lacked firmness, and the cut section was smooth instead of being granular. Microscopical examination showed no solid hepatization, but an incomplete filling of the alveoli with large multinuclear cells.

A series of bacteriological studies was made in the author's clinic upon the various sorts of sputum seen in influenza-pneumonia. Diplococci or these with streptococci were found, or, still oftener, diplococci with staphylococci. A second series of studies was made upon pleural exudate occurring in influenza, and this revealed streptococci, diplococci, and staphylococci.

Still a third series was made upon the two fatal cases of pneumonia referred to, and upon another case of pneumonia with meningitis. It was found that three sorts of microbes were present in these pneumonias, viz., diplococci—i. e., Fränkel's pneumococci—streptococci, and staphylococci. This agrees for the most part with the observations of other investigators on grippal pneumonia. He concludes that the pneumonia of influenza is of several varieties, viz., the genuine form due to diplococci, and varying somewhat though not greatly from the typical, and mixed forms. In two other cases under the author's observation there was a pneumonia caused exclusively by streptococci, since the purulent pleural exudate which accompanied it contained only streptococci.

Leyden takes the ground that in the presence of influenza these different microbes penetrate into the body and there produce diseases analogous to those which they would produce without the influence of influenza. This gives no information regarding the cause of the influenza itself—whether a specific microbe or a miasma; and the author expresses himself as inclining to the latter.

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#### THE ANTISEPTIC AFTER-TREATMENT OF VACCINATION.

JOHN BARK (*British Medical Journal*, 1890, i. 233), after a yearly experience in the last five years of over 2000 primary vaccinations, says that the accident most to be dreaded is the occasional occurrence of erysipelas, which may, of course, end fatally by septic absorption. He has noticed that all the attacks of blood-poisoning following vaccination have been in children in whom cleanliness was almost entirely neglected, or who were living in houses where the hygienic surroundings were bad; and he entertains no doubt that all the attacks of blood-poisoning were due to one or other of these causes, and that they were not the direct result of the operation.

Having a profound conviction of the value of antiseptics in surgery, he has for over a year employed an antiseptic pad for the protection of the vaccinated arms of children, applying it after the opening of the vesicles on the eighth day, before which date, in his experience, septic absorption does not take place.

The pad is composed either of boracic or eucalyptus absorbent cotton, or, better, of perchloride wood-wool wadding, and covered at the back and edges with antiseptic gauze. Two straps of soft half-inch tape fasten the pad to the upper arm, and a similar tape passing from the sternum to the opposite axilla prevents the pad from slipping down.

The dressing should not be disturbed for at least six days. The advantages claimed by the writer for the form of protection are: 1. It protects the arm from external violence. 2. It absorbs all discharges. 3. It reduces the risk of septic absorption. 4. It cannot be used a second time like ordinary shields, which are often the dangerously employed again and again. 5. It is extremely cheap.

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#### THOMSEN'S DISEASE.

HALE WHITE (*British Medical Journal*, 1890, i. 241) exhibited at the Medical Society of London a case of Thomsen's disease in a boy of nineteen

years, whose father, one sister, and two cousins were also affected with it. The disease began when he was a child. There was the characteristic stiffness on voluntary movement throughout the body. The fingers when flexed could not again be extended for eight seconds. The second time the duration of the immobility after flexion was four seconds, and it grew gradually less after each effort. Nearly all the voluntary movements of the body were implicated, though the muscles of the eyes and larynx and the interossei were uninvolved, as were the acts of defecation, micturition, and respiration.

On mechanical stimulation of either motor nerves or muscles, the latter contracted more readily than normal, but the contraction and relaxation were slower than normal. The electrical reactions generally were normal, but ACC. was, in some muscles, easier to obtain than KCC.

GEORGE HERSCHELL showed two brothers, aged twenty-eight and eighteen years, suffering from myotonia congenita. They belonged to a family of ten children, five of whom were affected similarly. The first movement of a muscle after long repose was exaggerated, and a condition of tense rigidity remained for nearly a minute after the voluntary stimulus was withdrawn. Muscular rigidity was produced by any sudden movement, particularly in climbing and walking upstairs. The arms and legs were chiefly affected, the jaws very slightly and occasionally, if at all. The knee-jerk was normal after the stiffness caused by the first movement of the leg had passed off. The affection commenced in childhood.

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#### DELAYED RESOLUTION IN PNEUMONIA.

CIMBALI (*Münch. med. Wochenschr.*, February 18, 1890) concludes, at the close of an address on this subject, that delayed resolution in pneumonia occurs in debilitated individuals (particularly in malarial cachexia), and almost always in severe cases, as a result of cardiac weakness. After the crisis, the physical signs remain unchanged, the sputum pneumonic, and often there are at times evening rises of temperature.

In Cimballi's cases resolution was always complete by four to six weeks after the crisis, and there was no instance of relapse. Resolution in all the cases proceeded parallel with but in advance of the improvement in the general condition of the patient, and the therapy consisted, therefore, chiefly in increasing the resisting power of the organism. Finally, the author points out that a pneumonic lung in which resolution has been delayed offers a favorable nidus for the growth of tubercle bacilli, on account of which fact the patients in this stage are to be guarded with special care against the possibility of tubercular infection.

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#### OBSERVATIONS ON THE TREATMENT OF EMPYEMA.

PEL (*Zeitschrift f. klin. Med.*, 1890, xvii. 199), after referring to the fact that the proper method of treating empyema appears to be by no means settled, takes up the discussion of this subject. In the last eight years he has had under observation about 80 cases in his clinic and about 20 cases in private practice; they have been treated in different ways, according to the methods most in vogue at different periods, although for the last three years he has followed a more definite plan which he has found to give the best results.

Regard was had to—1. The age of the patient. 2. The cause of the disease. 3. The extent. 4. The nature of the exudate. 5. The period of the disease. 6. The general condition of the patient.

The different methods of treatment employed were :

1. The simple puncture, performed once or often.
2. Aspiration followed by washing out of the pleural cavity.
3. Permanent aspiration (method of Bülow).
4. Radical incision.
5. Resection of one or several ribs with incision of the pleura.
6. Expectant treatment.

He discusses these various methods of treatment, as exemplified by a number of cases whose details he reports, and draws conclusions which may be summarized as follows :

1. The pathological indication of empyema is different in different cases; depending upon (*a*) the etiology, (*b*) the extent of the exudation, (*c*) the character of the pus, (*d*) the duration of the disease, (*e*) the age of the patient, and (*f*) the general condition and the constitution of the patient.

2. Treatment is to be determined by a consideration of all these factors; and must be conducted strictly according to individual conditions.

3. As far as the idea of a general method of treatment can be entertained, the radical incision, sometimes combined with resection of the ribs, is by far the efficient method, and is the only one which assures definite results. In very recent cases, however, the radical operation must not be too quickly undertaken, not only on account of the danger of infecting the pleura from without, but on account of the possibility of a recrudescence of the pleural inflammation. In practice such cases would be seldom encountered.

4. Simple aspiration, performed once or several times, is only exceptionally followed by good results, even in empyema in children. It is indicated only in small, circumscribed, and especially meta-pneumonic empyema, where no single symptom demands immediate and total removal of the pus, and yet the general condition of the patient does not permit of expectant treatment. In the case of large collections of pus aspiration is only allowed under stress of circumstances, or in cases in which only palliation is intended.

5. Aspiration followed by washing out of the pleural cavity is not to be recommended.

6. Permanent aspiration (Bülow's method) is best suited to recent cases with thin fluid, sero-purulent contents. In other cases less hope can be entertained of a favorable result.

7. An expectant procedure (*i. e.*, suitable general treatment without operation) is adapted to those cases in which there is present a small circumscribed empyema without such symptoms as fever, general weakness, rapid pulse, and disturbed digestion, demanding the operative removal of the pus. Especially is this true if the process has been preceded by a croupous inflammation of the lungs. To proceed to incision in these cases as soon as pus has been discovered, is to overlook the many natural recoveries which take place under these circumstances. If, under proper treatment, the empyema is not absorbed or discharged by a bronchus, and if the general condition of the patient does not justify further expectant treatment, simple aspiration should be first tried, and then incision, if the other be unsuccessful.

# THE FORMATION OF HOSPITALS FOR CONSUMPTIVES.

In a discussion in the Society for Internal Medicine, on the establishment of hospitals for consumptives, CORNET (*La Sem. Méd.*, 1890, 78) said that it was now generally admitted that a patient with phthisis could communicate the disease to the members of his family, but that the importance and extent of this danger were still discussed. He believes that the disease is communicated in hospitals much more frequently than is ordinarily supposed; the great slowness with which the infection develops causing the fact of the contagion to be overlooked. It has been claimed that physicians should become oftener affected by it than they do, were the disease so contagious. That they are not is due to the fact that at the time of their visits to the sick the bacilli, which have been stirred up by the cleaning of the room, have settled on the walls, furniture, etc., and the danger is at this time, therefore, not so great. Besides, statistics do show that a large number of those in attendance upon phthisical patients in hospitals contract the disease; for, in spite of all that has been done by the authorities, prophylactic measures are in many hospitals totally disregarded. The author, therefore, strongly recommends the construction of special hospitals for this disease.

GERHARDT took the same ground as to the need of special hospitals for this disease, arguing for the contagiousness of phthisis from the point of view of his experience; while FÜRBRINGER and some others argued against the establishment of such institutions.

## RETARDATION OF THE HEART-BEAT—BRACHYCARDIA.

RIEGEL (*Zeitsch. f. klin. Med.*, 1890, xvii. 221-291) publishes a most elaborate and instructive article upon retardation of the pulse, of which we can give but a brief abstract. He has himself for a long time paid special attention to the subject, and now combines his experience with an exhaustive review of the literature in the study of the occurrence, frequency, mode of origin, and indications of brachycardia.

The title "retardation of the pulse" is not quite accurate. Cases frequently occur in which the pulse does not indicate as many contractions of the heart as palpation or auscultation shows actually takes place. The heart-beats may sometimes be double or even treble the number of pulse-waves. Cases have frequently been reported as instances of brachycardia in which this condition was present. Pulsus bigeminus, in which the second beat is excessively weak, has been mistaken for retardation of the pulse.

The author excludes all such cases from the category of brachycardia, and claims that it is not the number of pulse-waves but that of heart-contractions which is the criterion.

The normal number of heart-beats per minute has been variously stated. He agrees with the majority of writers in considering a pulse of 60 or under as indicating brachycardia, and excludes from consideration all cases over that, or in which the heart's action does not correspond with that of the pulse. He has examined in the last seven years

	4484	men	and	3083	women	=	total	7567
and found	710	"	"	331	"	=	"	1041

instances of bradycardia. The preponderance of males he considers of no import.

He divides bradycardia into :

I. That occurring under physiological conditions.

II. That occurring under pathological conditions, although it is often difficult to determine to which class a case is to be assigned.

I. Physiological bradycardia.

1. *Puerperal bradycardia.* It is not uncommon to see the pulse beating from 44 to 60 per minute in the healthy puerperal state, and it has been reduced even as low as 34. The duration of the retardation is from some hours to ten or twelve days, or even longer. The nature of the labor exerts no influence on it. It is seen after premature labor as well as that at term; the presence of the slightest pathological condition during the puerperium hinders its development. The most varying explanations have been given of its cause. The principal of these are: (a) increase of the arterial tension and of the blood pressure; (b) absorption of the fat of the degenerative uterus; (c) disturbances of innervation; (d) mental and bodily rest; (e) diminution of the work thrown on the heart by the removal of the demands made by the foetus; (f) increase of the vital capacity of the lungs. Riegel discusses these theories very briefly, and quotes from the authors who support them.

2. *Bradycardia from hunger.* It has been shown by the experience of Lissauer on fasting Hebrews that the frequency of the pulse is less on fast days, though showing variations.

3. *Bradycardia depending on individual peculiarities.* Grob described 6 cases of this sort out of 3578 individuals observed. Riegel entertains a doubt about some of them, and emphasizes the importance of determining that the slowness of the pulse is more or less constant, and not due to the presence of some pathological condition. He cites a few other cases from medical literature, but believes that many of them cannot properly be included in this category, and holds that the retardation of pulse from this cause is rare.

II. Pathological bradycardia. All of the author's 1041 cases are included in three groups. He combines in it the "idiopathic" and "symptomatic" forms of Grob.

1. *Bradycardia in convalescence from acute febrile diseases.* 282 cases of this sort were observed, occurring in pneumonia; recurrent, typhoid, and intermittent fever; articular rheumatism; febricula and influenza; diphtheritis, scarlatina, morbilli; variola; varicella, and erysipelas. A tabular arrangement is given showing the number of instances of each. The condition followed in about one-seventh of the total number of cases of fever. It is especially apt to occur in the fall of temperature if antipyretics or digitalis have been employed. He quotes extensively the opinions of different writers and recorded instances of slowing of pulse after fevers. In his experience it is especially apt to occur in young and strong individuals, and in cases which have run an uncomplicated course. The retardation may accompany the crisis, or occur more gradually and increasingly. It lasts a very variable time; the general conditions do not seem to be affected by it as a rule, though cases have been reported in which severe symptoms attended its development. He discusses the proposed explanations of its cause, adopting as the most rational that of Traube, that it is an evidence of exhaustion; the resistance which the heart

offers to nervous impulses being increased through exhaustion, and consequently the organ responding only slowly after the influence of the fever is removed.

2. *Brachycardia in diseases of the digestive organs.* The largest number of cases observed by Riegel were of this class, viz., 379, divided among very various affections; those in which it occurred oftenest being ulcer and carcinoma ventriculi, simple gastrectasia, gastric catarrh, chronic dyspepsia, catarrhal icterus and diseases of the liver, and diseases of the oral cavity and throat. He has been able to find but few cases reported in the literature. The degree of retardation noticed was often great, the pulse beating 40 to 45, and in one case of dyspepsia 34. The brachycardia usually disappears with the *disease*, but not universally with the acute *symptoms*. The cause of the retardation is easily explainable in many cases on the theory of reflex inhibitory influence through the vagus, in others it is not clear. Icterus was the cause in a number of cases; that icterus produces this result has long been known, and is now generally admitted to be due to the influence of the bile acids upon the cardiac ganglia. Most of the cases following diseases of the mouth and throat can more properly be relegated to the preceding class.

3. *Brachycardia in diseases of the respiratory organs.* 87 cases are included here (not including pneumonia, referred to the first group). Little is to be found in medical literature on the subject. The greater number of cases of this class seen by Riegel occurred in emphysema. In this disease the cause was probably the increased pressure on the vagi in the overfilled lungs, as well as the action of blood containing an abnormal amount of carbonic dioxide. In other conditions the cause was often not easily discoverable; though in some the retardation might properly have been referred to the first class as convalescence-brachycardia.

4. *Brachycardia in diseases of the circulation.* Only a small number, 47 cases, of this kind were seen, and the ratio to the total number of circulatory diseases observed was also small. All cases of irregularity of the heart, etc., and of the retarding action of drugs, were excluded. The condition was relatively most common in diseases of the myocardium, especially fatty degeneration. Riegel reviews carefully many of the expressed views and reported cases of other writers, illustrating brachycardia in fatty degeneration of the heart, sclerosis and thrombosis of the coronary arteries, aortic stenosis, diseases of the aorta, cardiac over-strain, angina pectoris, mitral stenosis, diseases of the pericardium, and congenital heart-lesions. He concludes from these, with a study of his own cases, that although brachycardia is quite frequently seen in fatty degeneration and in sclerosis of the coronary arteries, as well as in certain valvular lesions, it is in no sense a constant and pathognomonic symptom of any certain diseases of the heart. He regards it as of rare occurrence in heart disease. Its cause is doubtless different in different cases, but it only occurs in a weak and insufficiently nourished heart, whatever the actual circulatory disease may be. Thus a certain process may, or may not, produce brachycardia, according as the heart is or is not weak. A true neurasthenia of the heart has also been described as a cause of brachycardia.

5. *Brachycardia in diseases of the urinary organs.* Riegel has observed 64 instances of this, divided among cystitis and acute, chronic, and non-

scarlatinal nephritis. He quotes the little which is to be found in medical literature regarding it. He has for years observed its occurrence in nephritis, and considers it to be always associated with diminished excretion of urine and an increase in arterial tension. This and the retardation are due undoubtedly to uræmia. Consequently brachycardia is much more common in acute than in chronic nephritis. In diseases of the bladder it is probably produced by some reflex action, as by an irritation of the sensory nerves.

6. *Brachycardia resulting from intoxications.* In addition to the uræmic, Riegel has observed 3 cases resulting from poisoning by lead and 5 from that by alcohol. Instances of both these conditions have been reported by others, and are quoted by him. The brachycardia after digitalis and similar drugs is to be classed here, as is that from the use of strong coffee or tobacco.

7. *Brachycardia in diseases of the blood, and in general disturbances of nutrition.* 31 cases observed by him are included in this group. It has been described in diabetes, though it is uncertain how far the disease was etiologically connected with the retardation. Diabetes insipidus and brachycardia may be associated, both being due presumably to irritation of the vagus. Anæmia and chlorosis too frequently are accompanied by brachycardia to allow of the supposition that the association is merely accidental.

8. *Brachycardia in diseases of the nervous system.* Riegel has himself observed 93 cases, and numerous instances are reported in the literature. Its occurrence in diseases of the brain has long been known, as in concussion, apoplexy, meningitis, second stage of epilepsy, cerebral tumors, cerebral anæmia, anything causing an irritation of the vagus centre, etc. As regards disease of the spinal cord, it has long been understood that injuries of the cervical cord, as in fracture of the vertebræ, may produce retardation of the pulse. The association of retardation of the pulse with epilepsy or other spasm has also been noted. He quotes at length many instances of the connection of retardation of the pulse with the condition of the central nervous system, and discusses the nature of the connection.

In certain psychoses brachycardia has been observed, as in mania, melancholia, general paresis. It has been seen in mental depression. Numerous cases are reported and here referred to in which brachycardia was the result of direct irritation of the vagus, abscess, or pressure.

The author's own cases were divided among quite a variety of nervous diseases. Quite a number were instances of neuralgia, and the retardation is to be accounted for by the irritation of sensory nerves. There were beside 10 cases of neurasthenia or hysteria, with slowing of the pulse, and 8 cases of epilepsy.

9. *Brachycardia in other affections.* The author has observed 17 instances of pulse-retardation in exhaustion, 1 in sunstroke, 12 in diseases of the skin, 17 in painful affections of the muscles, and others in diseases of the sexual system.

In summing up the results of his studies, he says that brachycardia is much the most frequent in convalescence from acute fevers; then in diseases of the digestive system, and then in those of the circulatory, respiratory, and nervous systems. The cause and indication are very different in different



cases. After acute fever it is, to a certain extent, a normal occurrence, and in the puerperium is purely physiological, while in diseases of the heart and brain it is an ominous symptom. As to its etiology, it is sometimes a reflex phenomenon from different peripheral paths, sometimes a direct cerebral focal symptom. Its cause is sometimes a diminished excitability or a paralysis of the cardiac ganglia, the accelerator nerves, or vaso-motor system; sometimes an irritation of the vagus; sometimes a weakness or degeneration of the heart muscle; sometimes direct disorders of the coronary arteries.

Only by observation of all the other symptoms can the diagnostic and prognostic indications of brachycardia be determined in any given case.

A bibliography containing 161 references closes this very valuable paper.

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#### PERU BALSAM AND NEPHRITIS.

BRAEUTIGAM and NOWACK (*Centralblatt f. klin. Med.*, 1890, No. 7) refer to the well-known danger of nephritis following the use of such balsams as copaiba and styrax, but say that only two modern authors, Litten and Vamossy, have recorded cases in which Peru balsam produced such a condition. The first reported the case of a painter suffering from lead colic, and from scabies, who passed blood, epithelium, and casts in his urine after each inunction with the medicine. In the four cases of the second writer, irritation of the kidney, with albuminuria and dark-colored urine, followed the employment of Peru-balsam gauze.

In order to settle the point to their own satisfaction, the authors examined systematically the action of the balsam on the kidneys in twenty-two cases of different diseases, testing daily in each the color, odor, specific gravity, quantity, reaction, presence of albumin, and microscopical appearance of the urine. They indicate the results in tabular form. The balsam was given by the mouth, subcutaneously, and by hypodermic injection. The largest dose employed was 170 grains in one day. That the balsam was actually absorbed was proved by the strongly acid reaction of the urine, due probably to an increased amount of hippuric acid. Their results contradict entirely the statements of Nothnagel and Rossbach, that the drug given internally in large doses produces gastro-intestinal catarrh and acts as an irritant to all mucous membranes. In no instance did they observe any disturbance of the stomach or bowels, nor any brown coloration of the urine, albuminuria, nor abnormality in the amount of urine secreted.

It is clear that Peru balsam is not to be compared with copaiba and styrax in its action on mucous membranes and on the kidneys. This is probably due to the absence in it of ethereal oils. It is possible that the renal irritation witnessed in Vamossy's and Litten's cases was due to adulteration with ethereal oil. It is, therefore, very important to secure the purity of the preparation.

## SURGERY.

UNDER THE CHARGE OF

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## EXTRA-DURAL HEMORRHAGE OF THE TEMPORAL REGION.

In an interesting and valuable paper on the treatment of certain cranial and spinal injuries, DR. LEWIS S. PILCHER (*The Annals of Surgery*, March, 1890) makes the following observations as to the course of operative procedure in cases of extra-dural hæmatoma of the temporal region: Krönlein's recent memoir on this subject, based upon the study of 280 cases, gives much valuable data upon this point. Krönlein describes four varieties of hæmatomata, arising from rupture of the middle meningeal artery, divisible into two general groups. The first group, diffuse hæmatomata, may extend as an even layer over the inner surface of an entire half of the skull; the second group, by far the most numerous, are circumscribed and lenticular in form, and are capable of subdivision by location into fronto-temporal, parieto-temporal, and parieto-occipital, according to the portions of the cerebrum which they compress. The most frequent forms are the parieto-temporal, situated over the middle cerebral convexity, bounded in front by the edge of the lesser wing of the sphenoid, posteriorly by the free margin of the petrous portion of the temporal, and extending from the region of the foramen spinosum below and upward a variable distance toward the vertex. It is possible that a given case may present localizing symptoms sufficient to indicate to the surgeon the variety of hæmatoma with which he has to deal, from the cortical areas shown to be affected. In such cases the point at which the trephine shall be applied is indicated with considerable accuracy, but in those far more frequently occurring cases in which by reason of complications involving other areas of the brain the localizing symptoms are confused, or by reason of the wide extent and mass of the compressing clot they are held in abeyance, the problem is less simple, and the surgeon must be guided by general principles in his attack. A perforation made in the temporal region, through the anterior inferior angle of the parietal bone, gives access, as Krönlein points out, to the areas of the diffuse, the temporo-parietal, and the fronto-temporal hæmatomata, and is, therefore, the point of election for exploratory perforation in all doubtful cases. The location of this point is easily effected. It is from one and a quarter to one and a half inches behind the external angular process of the frontal bone, on a line drawn backward from the superior margin of the orbit to the entrance to the external auditory meatus. If this first perforation prove fruitless, a parieto-occipital hæmatoma is to be sought for by a second trephine perforation, made in the region of the posterior branches of the middle meningeal artery. The most favorable point for this second perforation is on the same line as the first, prolonged backward, at its intersection with a vertical line carried upward directly behind

the mastoid process. A second opening of this sort is advised by Krönlein to be made in case of diffuse hæmatoma to permit the more thorough removal of the coagula, and to insure complete drainage.

Dr. Pilcher knows of no instance, as yet, where this recommendation has been carried out in practice, but its reasonableness and necessity in certain cases must command the assent of surgeons.

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#### THE SURGICAL TREATMENT OF MOVABLE KIDNEY.

DR. A. J. McCOSH reports (*N. Y. Medical Journal*, March 15, 1890) four cases of nephrorrhaphy, and makes the following remarks in regard to the operation: Nephrorrhaphy may often have failed to effect a cure. That such failure has resulted in a considerable number of cases is not denied. The operation has, however, effected a cure in many patients and has ameliorated the sufferings of others. The operation is a comparatively safe one. The mortality is not over two per cent. Is the patient to be deprived of this chance for cure simply because certain surgeons are sceptical as to the beneficial results of suturing the kidney to the loin? Or is the misplaced organ to be extirpated by an operation the mortality of which is twenty-five per cent.? It seems that there should be only one answer to these questions, as there is ample proof that in very many cases nephrorrhaphy had been followed by most satisfactory results. The cases reported where permanent relief from suffering has resulted in patients who have been under many years' observation by careful observers, are now too numerous to be attributed to enthusiasm on the part of the surgeon or patient, or to any mental result produced by operation. While the condition of some patients who suffer from a dislocated kidney is serious enough to warrant an attempt at cure by nephrorrhaphy, in how many is it sufficiently grave to warrant extirpation of that organ? (In thirty-six nephrectomies, collected by Lindner, for movable kidney, nine died from the effects of the operation, equal to twenty-five per cent.) He considers that there is no warrant for this latter operation until every other means has been tried and failed, and then only in the most desperate cases. An attempt should certainly first be made to fasten the kidney by means of suture. Should this attempt fail, it will be a question whether nephrorrhaphy should not again be tried. Numerous cases have been reported where a second nephrorrhaphy has resulted in cure, and where failure has twice occurred, a third trial has been successful in more than one patient.

In an endeavor to collect all the cases of nephrorrhaphy which have been reported, Dr. McCosh succeeded in finding a record of 117 such operations. A detailed account, however, is given of only 87 patients. The excellent pamphlet by Lindner and the recent able article by Frank, have been of much service in this work. Many of the reports have been made at the expiration of a few weeks from the time of operation, and, as a patient ought not to be considered as permanently cured until a year at least has elapsed, it is impossible to draw any definite conclusions as to the relative proportion of successes and failures. Out of 56 nephrorrhaphies collected by Frank, 21 patients had been under observation for a year or more. The result in 11 of these was permanent cure, in 4 decided improvement, and in 6 failure.

Out of 11 cases where the sutures passed through the parenchyma of the kidney, 9 were cured. Morris claims 7 successes out of ten. In the 117 cases recorded below, 3 deaths have occurred. One of these, however, cannot be attributed to the operation, as an ileus, supposed to be due to a floating kidney, existed before operation and was unrelieved. The fatal result in another patient can only in part be attributed to the nephrorrhaphy; a pleurisy followed, due to attachment of sutures to the twelfth rib, but it was complicated by a fatty heart and atheromatous arteries. In the third case septicæmia resulted from passage of a suture through an old embolic infarction in the kidney. Of the 87 detailed cases, 32 patients had been under observation for one year or longer; in 15 of these radical cure resulted, in 4 decided improvement, and in 13 failure. As has been stated, it is not just to compare these figures with the total number of cases, for in a large proportion the permanent result is unknown. Relapses generally occur within the first few weeks after operation, and, therefore, it is reasonable to suppose that the majority of patients who are well at the end, say, of three months, will be permanently cured. A comparison of the results at this period ought to be of some value. There are 62 patients whose condition at the expiration of three months is stated. In 32 a cure had been effected, in 14 decided improvement had resulted, and in 13 no benefit had been derived from the operation. In 29 of these cases the sutures had been passed through the parenchyma of the kidney, with the result that 20 were cured, 5 improved, and 4 unimproved. In 22 of the same cases the capsule alone was sutured, and the result was 9 cured, 7 improved, and 6 unimproved.

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#### RETENTION OF URINE.

MR. BUCKSTON BROWNE, after reviewing (*British Medical Journal*, March 15, 1890) some points in connection with catheterism and other operative procedures in cases of retention of urine, concludes as follows:

Taking into consideration, therefore, our present knowledge, it appears that when a catheter patient has got into such a state that the frequent use of the instrument renders life burdensome, the bladder should be opened above the pubes. By this means the organ can be completely explored, any calculus extracted, the bladder drained and rested afterward. If any intravesical prostatic tumor is found, much must depend upon its size. If very large, it is probably a source of great irritation as well as of urinary obstruction, and it had better be removed. When, however, the growth is small, and especially when a stone has expectedly or unexpectedly been found, which may have been the cause of all the vesical misery, I should advise any one to hesitate before opening the prostatic capsule and enucleating the lobes. Also, when an elderly man, who leads a tolerably comfortable life, by passing his catheter even as often as every three hours, but who is anxious to be relieved altogether of his offending prostate, applies to the surgeon, I should still advise him to hesitate. Prostatectomy is a dangerous operation, only necessary in men already broken in health, and uncertain, even in cases of recovery, of being followed by release from the need of using the catheter.

## THE TREATMENT OF FRACTURE OF THE PATELLA WITHOUT OPERATION.

DR. WILLIAM T. BULL (*The Medical Record*, March 22, 1890) details the results in twenty-two cases of fracture of the patella by a plan of treatment which he fully describes and which consists in the use of plaster-of-Paris bandages after the effusion has subsided, with the application beneath the splint of adhesive plaster strips to steady the fragments. If the patient has been seen immediately after the accident, ice-bags or cold water compresses have been applied to the knee, after a posterior splint of wood, felt, or paste-board (and in hospital always of tin or iron, the Volkmann's splint with footboard) has been fitted to the limb. If seen several hours after injury, the use of cold or evaporating lotions has been discarded, and equable compression of the joint, with cotton compresses and snug bandages has been relied on, to promote absorption of the effusion; the limb has been slightly elevated on pillows.

The diminution in swelling has permitted the approximation of fragments after periods varying from two days to two weeks; on the average about the fourth or fifth day. When the gypsum bandage is applied, the limb has been elevated and the upper fragment has been drawn down and held by the loop of plaster, the centre of which rests above it on a pad of lint or gauze, while the ends pass obliquely downward to the upper part of the calf and the posterior surface of the leg. The lower fragment is similarly supported. It is possible to tilt the fragments by this manœuvre and so separate their upper margins. Their position should be noted and the first turns of the muslin or flannel bandage, which protects the skin from the gypsum, should be passed circularly about the centre of the knee to counteract this tendency to tilt.

Dr. Bull believes the plaster strips are not necessary, and that one could accomplish quite as much by simply using the figure-of-eight turns of a bandage. After the tendency to effusion has subsided, there is no tendency to drawing up of the fragments. The patient sits up after the gypsum splint is dry; if there be much shrinkage of the limb and the splint gets loose, it may be renewed.

After six or eight weeks it has been removed, and its posterior half or another hard splint of leather is applied and the patient allowed to walk. They have sometimes been allowed to walk with crutches after the fifth week; and it has seemed an advantage to have the first efforts at walking made a few days before the gypsum splint has been removed. For the next month or six weeks the posterior splint has been always worn by day; the thigh and knee vigorously shampooed and kneaded; but care has been taken not to make motion to flex the joint and thereby stretch the ligament. Electricity may be used if there is much atrophy of the thigh. At this period (end of three months) patients have usually been able to bend the limb but slightly—say not quite to forty-five degrees from the straight position—but the power of extension has been good.

Occasionally, in weak or nervous patients, the splint has been used for an additional month—making the period of enforced stiffness four months. From this point the treatment has been merely the exercise of care to avoid acci-

dent and by gradually increasing the work of the limb, to permit the functions to be restored.

The patients have generally used a cane during all this period, partly to remind them to be careful and partly to aid them in case of misstep; and have suggested the occasional use of a short splint behind the knee when any extra exertion was to be made; but the use of any kind of bandages or knee-caps after this period has been discouraged, and their application permitted, as in the case of the splint, only at odd times as a "reminder."

It has been often necessary to urge patients not to favor the injured knee in the ordinary use of it. Passive motion is inadvisable. In one of the reported cases it produced a refracture, and it would be an exceptional case in which it would be indicated.

The treatment after this manner lasts about six months, but involves a period of rest and confinement for only six weeks. A second period of six weeks can be spent in any kind of occupation or amusement that can be carried on with a knee stiffened with a ham-splint. During the following three months much care must be exercised to prevent accidents, and this may entail loss of time or money in the case of those who pursue arduous occupations.

Dr. Bull does not think that the period of treatment can be advantageously shortened; and he feels confident that the number of good results in his cases would have been larger if all the patients had been advised at frequent intervals during the six months' treatment. He does not overlook the fact that the result might be better. Between the sixth and the ninth month the patient should be steadily gaining. If there be a marked atrophy of the thigh without much separation of the fragments, the development of the quadriceps should be stimulated to the utmost. If the ligament and joint functions begin to weaken he would advise wiring the bone; if done at this period, the operation would be easier than when, at a later time, the fragments are wider apart. For stiffness he should hesitate to interfere. Better a strong and stiff joint than a weak and limber one. It would be rare to find a case which could not be flexed enough to keep the foot out of the way in sitting down. But if such stiffness existed with impaired extension, he would break up the adhesions first and afterward wire the fragments. The treatment of rupture of ligamentous union should be a conservative one until it is apparent that the result is to be unsatisfactory, when it may be wired.

As to the practice of uniformly wiring the patella, Dr. Bull thinks that it is sufficient to condemn it, that its advocates admit that its "success depends upon carrying out the smallest detail, and that it never should be undertaken by an ordinary practitioner." He adds: "But it is furthermore of interest to know that when its results are compared with those of the conservative treatment, all the cases being in one hospital, the judgment of an experienced surgeon is against it. It is not necessary to go into details. I will merely quote the conclusion of Brunner, after narrating the experience of the Zurich clinic for twenty-three years:

"The previously adopted bloodless methods are appropriate, and the suture by operation of a fresh fracture of the patella is only justifiable when it is compound."

## OTOLOGY.

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 UNDER THE CHARGE OF

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 THE MOST FREQUENT DISEASES OF THE EAR IN INFLUENZA.

DR. HAUG, of Munich, has written a valuable article on this subject, basing his statements on observations made upon the characteristics of the epidemic in Munich (*Münchener med. Wochenschrift*, February 25, 1890). Between December 25, 1889, and February 1, 1890, he observed personally eighty cases of ear disease directly traceable to influenza. These were nearly all connected with catarrhal affections of the respiratory tract, very few ear diseases being observed in cases of influenza of a nervous type.

The cases observed by Haug are divisible into three groups. *First*, that form of ear disease often seen in connection with ordinary sore throat and simple acute catarrhs. The hearing is often little or not at all affected, and there is very little earache. There is often a complaint of a sensation of fulness in the ear and an altered subjective hearing of the patient's own voice (autophony). In about half of these cases recovery ensues with proper prophylactic and therapeutic measures in from ten to twelve days. In other instances the swelling and hyperæmia of the drum cavity and membrana tympani increase, and exudation occurring the case passes into the *second* group. The disease now assumes a more serious nature. The pain in the ear becomes more constant and intense, and spreads out over the side of the head. The hearing grows worse, the pulse becomes quicker, and the temperature increases. The pulsating tinnitus now becomes intense and distressing. The membrana tympani becomes uniformly and intensely congested, passing from bright red to a bluish-red color, and all its outlines are lost. Together with such exudations in the membrana, effusion occurs in the tympanic cavity. In the course of from three to five days spontaneous rupture takes place, usually in the lower half of the drum membrane. This perforation is often very small at first, but as soon as it occurs the patient gains relief from pain in the ear. In this we find all the characteristic symptoms of an otitis in an infectious disease. The disease, which is now an influenza catarrh of the middle ear, runs its course with copious muco-purulent discharge, and with proper treatment will end in recovery in from three to five weeks. It may occur in from five to eleven days.

The most interesting form is the *third*, which is also the rarest, and Haug claims to have been the first to point it out, viz., the *hemorrhagic*. This seems to represent the special influenza-type of ear-disease. The patients thus affected are of those who have been suffering from the most pronounced symptoms of an acute catarrh of the respiratory tract, but who have not complained at all of their ears. Suddenly, after the fever of the general infectious disorder has subsided, the patient complains, often in the evening or at night, of intense boring pain in the depth of the ear which at last reaches the

highest intensity of any aural inflammation. The fever returns and increases; in the course of six hours the patient becomes intensely deaf. The membrana tympani will now be found, in nearly all its surface, to be of a dark bluish-red or blackish-blue color, and convex outwardly. All its contours are lost and an iridescent tint may appear on the most prominent points. In two instances the hemorrhagic process was limited to the membrana tympani without any participation of the drum-cavity.

The entire eighty cases of influenza-otitis were divided as follows: twenty-six cases of intense hyperæmia and swelling, of which six were ambilateral; thirty-seven cases manifested perforation of the membrana with muco-purulent discharge, of which five were ambilateral; the purely hemorrhagic were seventeen in number, of which two were ambilateral.

The treatment consisted in inflation of the tympana, gargles, inhalations, insufflations, with the administration of antipyrin, phenacetin, and quinine, in the simplest forms.

In the exudative form, when the pain was severe, local bloodletting in the temporal region, ice bags behind the ear, or about the ear, and in some cases a light coat of iodine on the mastoid region. In a later stage, if paracentesis could not be performed, hourly applications of some warm instillation in the external auditory canal proved of value. If pain increased and the temperature rose, and secretion was detected in the middle ear, with pain and sensitiveness in the mastoid, paracentesis proved to be the best means of relief. After paracentesis, inflation of the ear was carried out, and the canal syringed with an antiseptic solution. Then, after complete drying of the canal, narrow strips of sublimate gauze were carried down the canal as far as the opening in the membrana tympani. If, subsequently, the ear became filled with secretion, mopping with absorbent cotton was preferred to syringing. Powder insufflations are not advisable in these acute perforative cases, because of the liability of the formation of obstructive lumps of powder and pus mixed together. When the secretion is thin the simple boric acid powder, with or without an astringent admixture, acts very well. Five-sixths of the suppurative cases were adults. So many purulent cases are usually seen only in children during an epidemic of an infectious disease.

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#### FIVE CASES OF OTITIS MEDIA SUPPURATIVA FOLLOWING GRIPPE; OPENING THE MASTOID.

DR. H. R. CHATELIER, of Paris, communicates the facts relating to the above-named cases (*Annales des Maladies de l'Oreille*, etc., March, 1890).

The first case, being the victim of grippe in the beginning of November, 1889, suffered from otitis media suppurativa, in the right ear, which healed soon. A relapse occurred on the 22d of November, accompanied by intense pain in the mastoid. Purulent infection ensued, and the mastoid was opened. Recovery took place December 19th.

The second case was attacked early in January, 1890, with grippe, and almost immediately there ensued an acute otitis media suppurativa. The mastoid became painful in the course of a week. The operation was deferred at the patient's request until January 21st, when it was performed. Recovery ensued in twenty-five days.



The third and fourth cases ran a similar course.

The fifth case was that of a child five years old. The patient was attacked with grippe, then with acute purulent otitis media with facial paralysis in January. Early in February the mastoid was opened—*i. e.*, the cortical portion was trephined, but at this age no true mastoid cavity exists. The abscess cavity was scraped out, and antiseptic dressings applied.

#### LYMPHO-CARTILAGINOUS SYPHILOMA OF THE AURICLE.

L. JULIEN, Surgeon in the Saint Lazaire Hospital at Lyons, France, has given the above name to a tumefaction he observed in the *fossa helix*, at the upper part of the auricle of a young man. The tumor was slightly red and sensitive, it had developed rapidly three months after the initial venereal sore, coincident with cerebral troubles, and it disappeared, leaving in its place an induration without the usual transparent skin of the auricle. Julien supposed that in this instance not only the perichondrium had been involved, but also the rich network of lymphatics found in this region, and hence the name proposed for the new growth.—*Lyon Médical* and *Annales des Maladies de l'Oreille*, January, 1890.

#### EPITHELIOMA OF THE AURICLE.

HEURTAUX presented to the Anatomical Society of Nantes, March 13, 1889, a case of epithelioma of the auricle, in which the growth had become adherent to the wall of the auditory canal, and in which scraping the growth away had been required. The growth had also involved the parotid gland, a part of which had to be removed in consequence.—*Annales des Maladies de l'Oreille*, January, 1890.

#### DANGEROUS HEMORRHAGE FOLLOWING PARACENTESIS OF THE MEMBRANA TYMPANI, DUE TO WOUNDING THE BULB OF THE JUGULAR VEIN.

The danger of wounding the jugular vein, in any case where it projected through a dehiscence in the floor of the tympanic cavity, was first pointed out by von Troeltsch. DR. LUDEWIG narrates a case in illustration of this which occurred in the ear clinic at Halle.

A boy, five years old, was brought to the clinic with chronic aural catarrh of both ears. On the right side serous secretion was detected, in consequence of adenoid growths in the nasopharynx. Ten days after removal of the latter, paracentesis of the right membrana tympani was performed for the removal of exudation from the drum-cavity. There was observed at that time a bluish color in the posterior and inferior quadrant, while in front the limit of the exudation was visible as a yellowish line. This bluish color was not further noted, though the sequel showed that it ought to have received more consideration.

At the first incision into the membrana, which was not sufficiently large, on account of movement on the child's part, clear yellow serous fluid escaped from the drum-cavity. The dilatation of the cut was made, contrary to the rule of the clinic, by means of the paracentesis knife instead of with a probe-pointed knife. As soon as the knife had cut down to the lower border of the

membrana a stream of dark blood gushed from the ear, so that before a tampon could be inserted the child lost about thirty-two ounces of blood. It was now feared that the blood would find its way through the Eustachian tube into the throat, and probably end in death. But none of these fears were realized, as the tamponade and firm bandage quelled the hemorrhage completely and permanently, and the wound in the vein, as well as that in the membrana tympani, healed by first intention, and the bandages were removed on the eighth day. The child was kept under observation a month, and then dismissed cured, and has remained well, with nearly normal hearing ever since.—*Archiv für Ohrenheilkunde*, Jan. 1890.

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#### ACUTE OTITIS IN A LEPER.

Wagner reports the above-named case, which was observed in the service of PROF. LOLOIR, of Lille. (*Annales der Dermatologie, etc.*, 1889.) Both ears in this case were the seat of a disease characterized by crusts in the external canals, lying upon an infiltrated and red base. The membrana tympani of one side was in the same condition, and also perforated, with pus in the drum-cavity. Under proper treatment of both ears the tinnitus and pain vanished, and the auditory troubles disappeared entirely. The nose showed symptoms of atrophic rhinitis. In the larynx, epiglottis, and vocal cords there were infiltrations and small grayish tumors. It is worthy of note that a cure of the middle ear was accomplished, notwithstanding the morbid condition of the subject. This is in harmony with Leloir's observation that lesions of a traumatic or inflammatory origin cicatrize easily in the leprous.—*Annales des Maladies de l'Oreille*, January, 1890.

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#### INCOMPLETE UNILATERAL DEAFNESS FOLLOWING MUMPS.

MOURE reports two cases of incomplete unilateral deafness following mumps (*Annales de la Polyclinique de Bordeaux*, January, 1889). In one case the lesion appeared to be in the conducting apparatus, and the author believed, as the membrana revealed nothing abnormal, that there had been an exudation into the tympanic cavity, resulting in interference with the action of the fenestræ; hence the explanation of the irremediability of the deafness.—*Annales des Maladies de l'Oreille*, January, 1890.

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#### CHRONIC PURULENT OTITIS MEDIA IN DRUNKARDS.

NOQUET has made a number of observations upon the above-named subject (*Revue de Laryngologie*, Nos. 1 and 2, 1889). The result of the study shows that the evolution of such otitides is rapid, that the nerve centres are simultaneously invaded, and the extent of the disorders, under the influence of alcohol, is great. Alcohol in this form of otitis has a deplorable influence on the course of the disease, as it has in all other maladies.

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#### HEREDITARY DEAFNESS.

Under this title, BOUCHERON warns those with an hereditary tendency to deafness to take special care to have chronic affections of the throat and naso-

pharynx attended to promptly, and also to pay attention to the nares in all cases of disease (*Bulletin Médical*, December 5, 1888). In the course of his paper, Boucheron urges the mobilization of the stapes when other treatment has failed to improve the case, in order to avoid destruction of the auditory nerve (from want of use).—*Annales des Maladies de l'Oreille*, January, 1890.

#### A RARE CASE OF AUDITORY REFLEXES.

STEINBRUGGE, of Giessen, has observed some curious phenomena, called hysterical, in a man, forty-five years old (*Archives of Otology*, Nos. 3 and 4, 1889). "After a sensation of cold, passing from the knees to the stomach, or after a general rigor, the patient began to make some long inspirations; then suddenly the breathing would become shorter and more rapid, until it reached sixty in a quarter of a minute [*sic*]. Then succeeded a period of apnœa, followed by deep and irregular respirations. The same series of phenomena was repeated in the course of a few minutes, causing attacks lasting from five to ten minutes, during which the patient retained consciousness and the ability to do what he was told to do, but he could not speak. After the attack he gaped some. The most interesting point was the fact that these attacks were excited by musical sounds, and not by noises." Thus, Steinbrügge brought on the attacks by placing a vibrating tuning-fork on the patient's forehead. The ears presented the appearance of sclerosis of the tympanic cavity. The hearing was reduced. After suffering fifteen years from these attacks the patient was suddenly cured, after a *séance* of hypnotism conducted by an assistant of Prof. Riegel, and have not reappeared. Steinbrügge endeavors to show that the excitation passing by the way of the nucleus of the acoustic nerve is propagated to the pneumogastric and the hypoglossal, so as to produce the disturbances in respiration and speech. But in what way? This case is considered as showing that musical sounds are heard by the cochlea, and noises by the nerves in the vestibule. It may also be supposed that the centripetal course of musical sounds passes through the principal nucleus of the acoustic nerve, and that the centripetal course of noises reaches the lateral nucleus by passing through a portion of the anterior root of the nerve.—*Annales des Maladies de l'Oreille*, February, 1890.

## OBSTETRICS.

UNDER THE CHARGE OF

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#### A NEW FORCEPS.

BORJAKOWSKI (*Centralblatt für Gynäkologie*, No. 2, 1890) describes a new forceps which he has constructed, which lacks a pelvic curve. In place of the ordinary lock, the right blade of the forceps fits upon the left, and a pro-

jecting point of metal upon the upper blade fits into a notch in the lower blade; room is made for this notch by making a shoulder upon the forceps at this point and by hollowing out the shoulder; the hands are placed upon the forceps between pronation and supination, compression is made by the first and second fingers of the right hand only. It is claimed for this forceps that it locks easily; that it affords a convenient application of the hands; that it is light and easily carried about, and that injurious compression of the head is not produced by this instrument.

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#### THE USE OF THE OBSTETRIC BINDER.

HERMAN, at a recent meeting of the Obstetrical Society of London (*British Medical Journal*, March 15, 1890), had measured the diminution in the size of the chest and abdomen during the lying-in period of patients who wore a binder as usually applied, in those who had none, and those in whom the binder was especially tightened; he found the diminution in size in the lower part of the chest was practically the same in each case, and concluded that the ordinary binder had no effect upon the waist measure of the patient, although he had no doubt that it might cause deformity of the chest; the only use for the ordinary binder was to give comfort to the patient.

In discussion GERVIS believed that the binder put on after labor, and tightened from time to time, promoted uterine contraction, and lessened the tendency to hemorrhage.

CHAMPNEYS thought that the non-use of the binder led occasionally to pendulous abdomen, and its results; the binder should not be used so high as to compress the hypochondria.

BRAXTON HICKS believed that the base of the thorax was expanded by the pregnant uterus. He thought a slight bandage about the lower portion of the thorax beneficial in preventing hemorrhage, and favoring the contraction of the parts.

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#### ABORTION CAUSED BY CARDIAC INSUFFICIENCY.

HANDFIELD-JONES (*British Medical Journal*, March 15, 1890) describes three cases of cardiac insufficiency in which temporary increase in the trouble resulted in abortion. The ova in these cases were dotted with small hemorrhages occurring between the wall of the uterus and the membranes; in a few instances large clots were found, but usually the hemorrhages were small; the theory of abortion in these cases is, that the failing activity of the heart resulted in congestion followed by rupture of the capillaries and extravasations of blood, and by the separation and expulsion of the ovum. Such patients should be put in circumstances where no severe exertion is undertaken, and should be given heart tonics and general treatment during pregnancy. With these precautions, abortion will generally be prevented.

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#### PAINLESS PARTURITION.

FANTON (*Archiv de Tocologie*, No. 2, 1890) reports twelve cases of labor in which birth occurred while the patient was hypnotized. In none of these cases was the patient aware of the birth of the child, nor was there complaint

of pain. An obstinate case of ptyalism during pregnancy, which had resisted every method of treatment, resisted also hypnotism. In some cases it is impossible to hypnotize the patient if the effort is not made at the very beginning of labor, before strong uterine contractions have occurred. On waking after her labor one patient said that the sensation must have resembled that of intoxication.

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#### A CASE OF NON-PUTRID PHYSOMETRA DURING LABOR TERMINATED BY EMBRYOTOMY.

GALLOIS (*Archiv de Tocologie*, No. 2, 1890) reports the case of a woman in her second labor, in whom forceps had twice been applied without success. The formation of a large quantity of gas in the uterus occurred, necessitating the completion of labor. Tarnier's forceps failing, the cephalotribe was also tried, and finally brought the head, with much difficulty, to the vulva. Rotation of the shoulders failing, it was necessary to perform embryotomy, and deliver the child's body, although with great difficulty. The sudden death of the patient occurred shortly afterward.

A remarkable feature of the case was the persistence of the foetal heart sounds until five hours before the cessation of labor. It is thought that an acute infection of the foetus occurred analogous to gangrene, and that, owing to that, gas accumulated in the uterus.

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#### A CASE OF OSTEOMALACIA; AMPUTATION OF THE UTERUS; RECOVERY.

ZWEIFEL (*Centralblatt für Gynäkologie*, No. 2, 1890) reports a case of highly contracted pelvis, caused by osteomalacia. The patient was at full time, the child dead, and in transverse presentation. As symptoms of constitutional infection from sepsis were present, amputation of the uterus was performed, the peritoneum stitched over the stump, and the stump dropped into the abdomen.

Recovery ensued, complicated by phlegmonous inflammation of the abdominal wall about the incision. Zweifel regards uterine amputation as the only adequate method of dealing with these cases.

FEHLING (*Ibid.*, No. 5, 1890) has removed the ovaries eight times for the cure of osteomalacia. In only two cases had labor taken place less than six months before the operation; the average time between labor and the operation was four and one-half years. In most cases temporary improvement followed, which was succeeded by a relapse. The utility of this method is yet to be proved.

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#### PREGNANCY AND LABOR COMPLICATED BY FLAT PELVIS, ECLAMPSIA, AND DERMOID CYST OF THE OVARY.

DONAT (*Centralblatt für Gynäkologie*, No. 8, 1890) reports a case of pregnancy at term in a flat pelvis, second vertex presentation; eclampsia was present, and the child's life was threatened by uterine trismus. On examination, an elastic tumor was found filling the pelvis, and it was decided to puncture and evacuate the cyst, and deliver the child by perforation and the cranioclast. The cyst was found to be dermoid, and contained three-quarters

of a quart of yellow, oily fluid. The child was easily extracted after perforation, and the placenta followed half an hour later. On examination, a laceration of the cervix was found upon the left side, which did not bleed. The patient developed septic infection, and died with peritonitis and pleuritis. A dermoid cyst of the left ovary was found post-mortem.

The uterine trismus was relieved by injections of morphine and the use of anæsthetics.

It is a question as to whether a better course of treatment would not have been abdominal section, free emptying of the cyst, stitching its wall to the abdominal incision, and delivering the child by the method employed, or by uterine amputation.

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#### CARCINOMA OF THE RECTUM; INDUCED LABOR; AN EPIDEMIC OF SEPTIC INFECTION.

LOHLEIN (*Zeitschrift für Geburtshülfe und Gynäkologie*, Bd. xvii. 1) reports the case of a multipara, seven months pregnant, in whom pregnancy was complicated by carcinoma of the rectum so large as to make delivery at term impossible. Labor was induced, and a living child was born spontaneously. The mother was subsequently transferred to a surgical ward, where a radical operation was performed, from which she recovered, and was discharged greatly improved. Her child perished ten days after birth, of exhaustion, caused by erysipelatous infection of the umbilicus and adjacent parts.

Shortly afterward a second child in the clinic was taken with similar infection and perished, with the same pathological appearances upon examination.

A mother attended by some of the nurses who cared for these children became infected by puerperal sepsis, and suffered from septic peritonitis and puerperal diphtheria. Under vigorous stimulation with alcohol the patient recovered. The interest attached to these cases lies in the indication for abortion and premature labor furnished by carcinoma of the rectum, and the remarkable recovery of the patient after infection of the peritoneum by sepsis.

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#### TOTAL EXTIRPATION OF THE UTERUS FOR RETAINED AND DECOMPOSED PLACENTA.

ROOSENBURG (*Nederl. Tijdscho V. Geneeskunde*, No. 21, 1889) reports the case of a multipara with whom a midwife had difficulty in expelling the placenta; the uterus was subsequently curetted to stop hemorrhage; pregnancy occurred again, followed by abortion at the fourth month; the midwife in attendance attempted to remove the placenta, but the cord broke, leaving the placenta behind; septic infection occurred, and the patient was transferred to a hospital. On examination but two fingers could be inserted in the uterus; it was impossible to remove the fragment of placenta by the fingers or by the spoon forceps; peritonitis threatening, the uterus was extirpated through the vagina, and tampons of iodoform gauze and cotton dipped in iodoform glycerine were inserted; fourteen days afterward the patient was convalescent. On examining the uterus an offensively decomposed piece of placenta was found adherent to its wall. The patient subsequently made a perfect recovery.

## TWO CASES OF COMPLETE INVERSION OF THE UTERUS

GRAHAM (*Lancet*, March 1, 1890) was recently called to a multipara in whom complete inversion occurred after precipitate labor. The patient had a roomy pelvis, the uterine ligaments were relaxed, and the placenta was firmly attached to the centre of the fundus; traction upon the cord had been made by a midwife; while attempting to remove the uterus, the patient collapsed and died.

POOLEY (*Ibid.*) reports a case of inversion of the uterus following traction upon the cord, in which the placenta was readily separated and the uterus replaced. The placenta was firmly adherent, and traction upon the cord is the only cause mentioned for the accident. The patient made a good recovery.

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## FEBRILE INTERMISSION IN PUERPERAL SEPSIS.

At a recent meeting of the Gynecological Society of Dresden, GRENSER (*Centralblatt für Gynäkologie*, No. 11, 1890) reported the case of a primipara, whose labor was terminated at the expiration of forty hours by the forceps, a recently dead child being delivered; the membranes had ruptured early in labor, antiseptic precautions had been carefully observed; septic infection occurring, on the sixth day an exudate in the ileo-cæcal region was found; under the use of ice, baths, and packs, opium and quinine, a cessation of fever with partial disappearance of the exudate resulted for several days, followed by an exacerbation of temperature, with left-sided pleurisy and tedious recovery.

In discussion LEOPOLD considered the utility of baths in treating puerperal sepsis as doubtful; he commonly employed ice, opium, and strict cleanliness, and alcohol; he rarely had occasion to employ baths in private cases.

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## TWO CASES OF ECTOPIC GESTATION.

HERMAN reports at the London Hospital (*British Medical Journal*, March 15, 1890) a case of tubal gestation with rupture toward the end of the second month, intra-peritoneal hemorrhage, operation during collapse followed by recovery. A diagnosis before rupture was uncertain, the hypogastria being tender, a resisting mass felt as large as a tennis-ball, while, by internal examination, nothing was found, except pain when the uterus was moved. The patient was found on the street by the police in collapse and brought to the hospital; the mass had disappeared. Laparotomy disclosed the nature of the trouble.

He also describes a case of subperitoneo-pelvic gestation, death of the fœtus at three months; operation followed by cure. The patient was a primigravida, who had suffered from attacks of pain in the hypogastrium, with many signs of pregnancy; on examination the breasts contained milk, a rounded swelling was found two fingers' breadth below the umbilicus, the uterus was displaced forward, behind the cervix was an elastic swelling continuous with that in the abdomen. On laparotomy a sac was found under the pelvic peritoneum containing a macerated fœtus at three months; it was emptied, and stitched to the abdominal wall, and a drainage-tube inserted.

## A CASE OF CÆSAREAN SECTION.

SÄNGER (*Centralblatt für Gynäkologie*, No. 1, 1890) reports the case of an old primipara with flat rhachitic pelvis, antero-posterior diameter three and one-third inches, the child living, with an abnormally large, hard head; labor persisting three days without the descent of the head into the pelvis; the os dilated as large as a half dollar; amniotic liquid escaped; threatened rupture of the lower uterine segment developed; temperature and pulse normal; the Cæsarean section was performed by Sängér, in accordance with his method so well known. The mother recovered after a normal lying-in period, and the child, an unusually well-developed boy, lived and thrived.

This is the seventh successful operation in succession by the conservative method advised by Sängér which he has done. He calls especial attention to the indications for the operation, which in the minds of some would not have justified Cæsarean section, but would have chosen craniotomy upon the living child. He does not regard Cæsarean section as a simple or easy operation, and denies that it can be successfully performed by those not familiar with the anatomy of the parts, and antiseptic surgery. He employs in these cases heavy silk for the uterine suture, which he places three-quarters of an inch from the edges of the incision, and he uses lighter silk for the abdominal wound. The patient received douches of carbolic acid during her recovery, and occasionally enemata were given for distention of the intestines.

## CÆSAREAN SECTION FOR RHACHITIS.

CAMERON (*British Medical Journal*, March 15, 1890) reports the case of a primipara, aged eighteen years, who had rhachitis of high degree, the antero-posterior diameter of the pelvic inlet being one inch. The child was in breech presentation; the operation was performed as usual, hemorrhage being checked by compression of the hand, the rubber tube not being required; the child was extracted by the head, the placenta was attached to the posterior uterine wall, and easily removed; silk was used for sutures, and both Fallopian tubes were ligatured at the junction of the outer and middle thirds; the operation occupied forty-five minutes; the patient made a good recovery, being troubled somewhat from tympanites and restlessness. It was not necessary to turn the uterus out of the abdomen in order to open it. Cameron much prefers ligation of the Fallopian tubes as a mean of sterilization.

## CÆSAREAN SECTION FOR OSTEOMALACIC PELVIS.

MCGOWAN (*British Medical Journal*, March 15, 1890) performed Cæsarean section upon a multipara greatly exhausted in labor, who had a markedly osteomalacic pelvis: the tuberosities of the ischia were less than three-quarters of an inch apart, and the pubic arch was almost obliterated; progressive deformity of the skeleton had existed for over a year. Her first labors had been easy, the pelvis eight years before having been found roomy. The operation was performed amid unfavorable surroundings. The patient died with peritonitis four days after the operation.



## CÆSAREAN SECTION FOR CARCINOMA OF THE UTERUS.

TEUFFEL (*Archiv für Gynäkologie*, Band xxxvi. Heft 2) reports a case of Cæsarean section for carcinoma of the uterus in which the tumor was so large that the uterus could be emptied in no other manner. Sublimated silk was used for sutures, the uterine and abdominal walls being closed completely. The child was extracted living, but died fourteen days afterward. For the first two days after the operation the patient suffered severely from after-pains, which ceased after the free discharge of bloody serum. In the second week symptoms of rapid increase of the cancer occurred, and a cancerous mass was felt through the abdominal wall at the entrance to the pelvis. The stitches were removed on the ninth day, union having taken place by first intention. The patient went to her home on the fourteenth day. Her subsequent history was that of repeated severe hemorrhage, which caused her death twenty-one days after the operation. Post-mortem examination revealed extensive infiltration of the abdominal and pelvic tissues with carcinoma. The uterus was filled with a cloudy, watery fluid, and upon the anterior wall there was a fissure extending to the serosa. The peritoneum over the uterus had remained in apposition. The rupture in the uterine tissues had been caused by the accumulation of lochia, and also fluid derived from the cancer which had found no exit from the vagina. The practical point of interest in the case lies in the necessity for securing drainage in these cases through the vagina, and also in the safety afforded by perfect closure of the peritoneum.

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## TWO PORRO OPERATIONS.

BEAUCAMP (*Archiv für Gynäkologie*, Band xxxvi. Heft 2) believes that the Porro operation should not be restricted to severe infection of the uterus alone, but should be performed in preference to the Cæsarean section when any portion of the genital tract is already infected by sepsis; he would, furthermore, perform the Porro operation for carcinoma of the uterus, and also for osteomalacia.

He adds the report of a case of carcinoma of the uterus complicated by twin pregnancy, in which Porro's operation was performed. One twin was delivered alive, and survived; the other was stillborn. By stitching the stump carefully to the abdominal incision infection of the abdomen was prevented, and the patient recovered from the operation; she subsequently died of cancer, and post-mortem examination confirmed the diagnosis and justified the operation.

His second case was one of osteomalacia, in which special pains were taken to close the tissues about the stump, the purse-string suture being used for this purpose. The patient recovered from the operation, and her general condition was considerably improved.

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FIBROMA OF THE UTERUS COMPLICATING PREGNANCY; MYOMECTOMY;  
RECOVERY WITHOUT INTERRUPTION OF PREGNANCY.

ROUTIER (*Annales de Gynécologie*, March, 1890) reports a case of a woman, three months pregnant, in whom a large fibroid existed. Laparotomy revealed

a kidney-shaped tumor attached by its hilum to the fundus of the uterus, and with one extremity above the pubis, reaching beneath the diaphragm; the pedicle of the tumor was severed after the application of the elastic ligature, and was sutured; the mass was then removed, the pedicle brought together, the elastic ligature removed, and when the capsule of the tumor was sutured the uterus was replaced in the abdominal cavity; the mass measured ten inches in length, six in width, and six in thickness. The patient made an uninterrupted recovery, and pregnancy continued. Routier has collected fifteen cases, including his own, in which active interference for fibroid tumor of the uterus complicating pregnancy occurred; ten of these cases recovered, three of them aborting, seven going to term; five of the cases died.

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#### ABDOMINAL GESTATION.

CHANDELUX (*Lyon Médical*, No. 2, 1890) performed laparotomy upon a patient fourteen months pregnant who had suffered from peritonitis after abortion. Fœtal death had occurred some time before operation and crepitation of the fœtal skull could be elicited. A macerated fœtus was found encysted in the abdomen, the right tube having ruptured. The cyst was sewed to the abdominal walls, and the placenta allowed to remain; the cavity was irrigated with boric acid 1 to 25, and tamponed with iodoform gauze. Six days after operation the greater part of the placenta was carefully detached by pressure with cotton soaked in bichloride of mercury 1 to 2000; the sac wall ruptured at one point and the intestines were visible. A free discharge of sanious pus continued, but under antiseptic irrigation complete cicatrization and recovery followed in twelve weeks.

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### GYNECOLOGY.

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#### UNDER THE CHARGE OF

HENRY C. COE, M.D., M.R.C.S.,  
OF NEW YORK.

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#### THE ETIOLOGY OF PERITONITIS.

FRÄNKEL and PREDÖHL (*Münchener med. Wochenschrift*, 1890, No. 2) publish the results of their observations in the Hamburg General Hospital. In fifteen cases of purulent peritonitis Fränkel found microorganisms, the majority being the same variety of streptococcus, leading to the inference that the latter was the exciting cause of the inflammation, especially in rapidly fatal cases. When life was prolonged other forms were found in the exudate, which were probably derived from the intestine, and seemed either to destroy or so to weaken the vitality of the specific cocci that they could be cultivated with difficulty outside of the body. Cultures of the streptococci, when injected into rabbits' ears, produced an inflammation identical

with that which resulted from the injection of the cocci of erysipelas. The other bacteria have the property of decomposing albuminoids and setting free ptomaines, which preserve their virulence even after the bacteria have been destroyed by boiling. The writer accordingly agrees with Bumm in distinguishing two forms of purulent peritonitis, septic and putrid. When peritonitis was produced artificially in animals by the injection of liquor ferri and tincture of iodine the exudate was always serous, and contained no organisms, unless life was prolonged and the odor of the fluid became offensive, when there were found bacteria from the intestine as before. The practical conclusion was that not only should strict antiseptic precautions be observed in puerperal and laparotomy cases, but that early operative interference in cases of purulent peritonitis would greatly reduce the mortality.

Predöhl's observations led him to deny that the *streptococcus pyogenes* was peculiar to puerperal peritonitis, and that the peritonitis which follows laparotomy is due to the development of ptomaines, although the exudate contains, in the majority of cases, a specific microorganism.

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#### INTRA-UTERINE APPLICATIONS.

SCHRADER (*Centralblatt für Gynäkologie*, April 12, 1890) thinks that cauterization of the endometrium with strong applications, especially sesquichloride of iron, is dangerous, chiefly because a coagulum or eschar is formed which may undergo decomposition and lead to septic infection. Curetting is less harmful; if the endometrium again hypertrophies a mild escharotic should be applied after curetting, but the resulting eschar should be at once scraped away. He prefers pure carbolic acid, which is applied on a feather.

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#### HEMORRHAGE INTO THE UTERUS AFTER TAMPONING THE VAGINA.

KLOTZ (*Centralblatt für Gynäkologie*, April 12, 1890) reports two cases in which dangerous intra-uterine hemorrhage occurred in spite of a firm vaginal tampon. In the first case a healthy patient was three months pregnant and had flowed for four weeks, the os being closed. External hemorrhage was entirely checked by a tampon, but a few hours later she collapsed, and the uterus was found to be greatly distended; it was emptied, but death ensued in an hour. The second case was that of a woman who had profuse hemorrhage from a fibroid uterus. She was tamponed the night previous to a proposed laparotomy, but collapsed, and nearly succumbed. A large quantity of coagulum was removed from the uterine cavity, and the hemorrhage was checked with hot-water injections; she was saved only with great difficulty.

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#### INTESTINAL OBSTRUCTION AFTER LAPAROTOMY AND VAGINAL HYSTERECTOMY.

KLOTZ (*Centralblatt für Gynäkologie*, April 12, 1890) calls attention to the frequency of this complication in his practice, which resulted fatally in four out of eleven deaths following laparotomy (in 344 cases), and in one out of three following total extirpation of the uterus (in 112 cases). He had personally observed twenty-seven other cases of ileus. He thought that there had been less cases during the past year, which was probably due to prompt

evacuation of the bowels after operation, and to the less frequent irritation of the peritoneum by sponges and antiseptic solutions. He had never seen any harm follow early purgation. The injection of air into the bowel was strongly advised in cases of intestinal obstruction.

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#### INTESTINAL OBSTRUCTION DUE TO PARAMETRITIS.

FRICKENHAUS (*Frauenarzt*, March, 1890) calls attention to the intestinal troubles, especially constipation, which often follow an attack of parametritis, although it is rare that complete obstruction results. He reports three cases from Saxinger's wards, and could find only four others in the literature. It is a significant fact that obstruction occurs more frequently in cases in which the exudation seems to be least extensive; and usually at a point just above the left sacro-iliac synchondrosis at the junction of the sigmoid flexure and rectum. The gut seems to be partially occluded by concentric adhesions, leading to disturbance of peristalsis and paralysis above the point of compression.

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#### THE REMOVAL OF PELVIC TUMORS BY PERINEOTOMY.

SANGER (*Archiv für Gynäkologie*, Bd. xxxvii. Heft 1) limits this operation to growths originating in the pelvic connective tissue, especially the dermoid variety. He describes at length an operation for the removal of a dermoid cyst of the subperitoneal space. With the patient in the lithotomy-posture a three-inch incision was made, extending from the inner border of the right labium majus obliquely inward across the perineum to a point one inch behind the anus. The ischio-rectal fossa was opened, the levator ani muscle divided near its insertion, and lastly, the pelvic fascia was cut through. The edges of the wound being held apart with retractors, it was found to be a comparatively easy matter to shell out the cyst. The wound was thoroughly irrigated, packed with iodoform gauze, and closed with deep sutures. The gauze was replaced on the second day by a rubber drainage-tube, through which the cavity was washed out twice daily. Granulation proceeded so rapidly that the patient was discharged at the end of three weeks. Examination by the vagina and rectum showed that a gap remained in the right levator ani muscle, showing that there was no fresh attachment at the point of insertion.

The writer believes that subperitoneal dermoid cysts of this character are not so rare as might be supposed, since he had been able to collect eleven cases, which are tabulated. The method described may be extended to include the following cases: Tumors, foreign bodies, and hæmatomata of the ischio-rectal fossa and subperitoneal cavity; retro-cervical fibro-myomata; intra-ligamentous and retro-peritoneal ovarian and parovarian cysts; hæmatometra and hæmatocolpos (where the enlargement is lateral); retro-uterine hæmatocele and abscess, and of atresia vaginæ in which operative interference is necessary. Recto-vaginal fistulæ high up may also be reached in this way, as well as the supra-vaginal portion of the ureters. The special advantage of perineotomy is that it permits the diagnosis and removal of these various subperitoneal growths without incising either the vagina or the rectum, and hence avoids the evil consequences of fistulæ, especially those of the latter canal.

## THE DEVELOPMENT OF THE HYMEN.

SCHAEFFER (*Archiv für Gynäkologie*, Bd. xxxvii, Heft 2) has made a careful study of this subject, based upon the examination of the genitalia in nearly two hundred fœtuses. He found that in every instance the hymen as early as the fifth month was composed of two lamellæ, the inner being derived from the vagina, the outer from the folding in of the vulva; in many cases the two layers coalesced, but they sometimes remained distinct until birth, though seldom later. The fœtal hymen had on its inner (upper) surface transverse folds similar to those in the vagina; between the folds were often formed small pockets, from which cysts of the hymen might form. Irregularities in the distribution of these folds account for certain anomalies in the hymen (*hymen crenelatus, dentatus, carinatus, falciformis*, etc.). On the outer (lower) surface of the fœtal hymen numerous folds were found, which extended from the fossa navicularis, nymphæ, clitoris, and meatus. The writer summarizes the arguments in favor of the bilamellar origin of the hymen as follows: 1. In over one-fourth of the specimens the lamellæ were clearly demonstrated; 2. The outer lamella was proved to be developed from the folds which radiated from the region of the vestibule; 3. Various stages in the union of the two lamellæ were observed; 4. The outer lamella had the same color and epithelial covering as the vestibule, the inner that of the vaginal mucosa.

## HYDRASTININ IN UTERINE HEMORRHAGE.

FALK (*Archiv für Gynäkologie*, Bd. xxxvii, Heft 2) reports twenty-eight cases of hemorrhage treated by this drug, eight of which were due to the presence of fibro-myomata. He found it most useful in cases of hyperplastic endometritis and congestive dysmenorrhœa; it was less reliable in cases of fibro-myoma and chronic metritis. It should be administered before the expected flow, preferably by hypodermic injection, in doses of from three-quarters of a grain to a grain and a half (in a ten per cent. aqueous solution). Two injections of the former amount may be given weekly in cases of fibroids until the week preceding menstruation, when they should be given daily; during the flow the dose should be increased to a grain and a half daily in half a syringeful of water. No bad effects followed the injections, except slight nausea in one instance, and passing faintness in another. No abscess occurred in five hundred injections; they were somewhat painful, but much less so than injections of ergotin.

Muriate of hydrastinin acts more powerfully than the fluid extract of hydrastis, probably by causing contraction of the arterioles. This was observed in rabbits, and was inferred in the human subject on account of the increase of the blood-pressure noted after an injection. The diminution of the blood-supply to the uterus causes uterine contractions which still further increase the local anæmia; painful contractions were repeatedly noted.

## DISSECTING METRITIS.

HOECHSTENBACH (*Archiv für Gynäkologie*, Bd. xxxvii, Heft 2) reports a case of this rare affection, to which he adds seven others collected from the

literature. The subject is discussed at length, with especial reference to etiology. The diagnosis is confirmed by the casting off of portions of the necrosed uterine wall; these are to be distinguished from the products of conception, and from the decidua thrown off in extra-uterine gestation. In regard to treatment great caution is enjoined in using intra-uterine injections, lest the uterus be ruptured.

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#### A NEW METHOD OF TREATING FIBRO-MYOMA.

RYDYGIER (*Wiener klin. Wochenschrift*, 1889, No. 10) recommends ligation of the ovarian and uterian arteries, instead of castration. He splits the broad ligaments and ties the arteries; the round ligament is also included in a ligature. In a case in which this operation was performed the tumor was reduced to one-fourth of its former size within four months.

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#### TENTH INTERNATIONAL MEDICAL CONGRESS.

In accordance with the decision of the Ninth Congress at Washington, the Tenth International Medical Congress will be held at Berlin from the 4th to the 9th of August, 1890.

The delegates of the German Medical Faculties and the Chief Medical Societies of the German Empire, have appointed a General Committee of Organization. A Special Committee of Organization has also been appointed for each of the different sections, to arrange the scientific problems to be discussed at the meetings of the respective sections.

An International Medical and Scientific Exhibition will also be held by the Congress.

A cordial invitation to attend the Congress has been extended by this Committee to the physicians of all countries.

The following are the officers of the General Committee :

*President*, Dr. Rudolph Virchow.

*Vice-Presidents*, Dr. von Bergmann, Dr. Leyden, Dr. Waldeyer.

*Secretary-General*, Dr. Lassar.

All communications must be directed to the Secretary-General, Berlin, N. W., Karlstrasse 19.

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